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Vol 4 No 32

Atari pressure may force Sinclair into *PCW* launch

BOTH a new Sinclair 128K Spectrum model and Atari's 260ST now look likely to be shown for the first time in the UK at this year's *Personal Computer World* show in September

Sinclair's 128K micro (see *Popular Computing Weekly*, May 16) is thought to be priced between £175 and £200 and be based on technology developed in conjunction with Timex US for its TS2000 micro, launched in the US over two years ago

Atari's 16-bit 260ST model features a built-in disc drive, is expected to cost around £360 and should be in the shops in October

The Spectrum 128K will be software compatible with the existing Spectrum and Spectrum Plus models, yet offer a number of additional features

It has 128K Ram, bank-switched in two blocks, with a facility for further expansion, and is thought to have built-in three-channel sound using the AY38912 sound chip, three additional display modes including a virtual screen facility high-resolution display and 64-column text mode, built-in joystick ports and the ability to control an 80-column printer.

The Spectrum 128K is expected to be in the shops in late-September or early October cont on page 4 ▶

Support grows for new 16-bit micros

BOTH COMMODORE and Atari are working hard to ensure that their new 68000-based machines, the Amiga and ST, do not suffer from lack of software at launch

Commodore-Amiga has announced that around 50 titles for the Amiga should be available by the end of the year in the US Some of these will be marketed under the Commodore-Amiga name, but many are in development from third-party software companies As many of these titles as possible will be brought to this country for Amiga's UK launch at the beginning of 1986

Atari, meanwhile, has delivered over 100 development 520STs to software houses, and hopes that up to 80 companies will exhibit ST software at September's cont. page 4 ▶

◀ New Amiga

SORCERY PLUS, the enhanced version of Virgin's acclaimed Amstrad title Sorcery, will soon be available on disc under the Amsoft Gold label, priced at £13 95

Sorcery Plus comprises the original Sorcery, *with extra screens incorporated, and 35 further screens making up a second part to the game*

In the new part you find yourself in the necromancer's domain, and must kill him with kindness – surrounding him with hearts found in the screens

Sorcery Plus *is so far the only non US Gold title on Amsoft Gold – the other games scheduled being* Beachhead, Raid over Moscow, Bruce Lee, Zaxxon, Buck Rogers, Congo Bongo, Tapper, Spy Hunter *and* Up and Down

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EDITORIAL

Who eighteen months ago would have put money on Amstrad to make a go of its entry into the home micro market?

Lynx and Dragon had gone and Oric was having problems Sinclair had never looked stronger and Commodore was claiming most of what was left

Having created the whole micro circus single-handedly four years earlier Sinclair had always forced the pace and when Amstrad announced that its micro would be Z80-based it seemed doomed to failure The 68000 revolution was just around the corner

That that revolution didn t happen must also be laid at Sinclair s door For some reason Sinclair took fright and eighteen months before any of his competitors – and four or five months too soon – he launched the QL. For whatever reason – the hardware design the operating firmware, the teething troubles – the QL never performed as any Quantum Leap should And because of that he let in Amstrad which grasped the opportunity with both hands

The Spectrum Plus may have been the first product of Sinclair The Marketing Company But it was also a weak effort. Instead Sinclair should have launched the machine it now may release this autumn – the Spectrum 128K All the work had already been done The Timex 2000 machine – the unsuccessful American version of the Spectrum – had bank-switching required for the 128K a three-channel sound chip and higher resolution graphics But instead we got the Spectrum Plus The mistake was a costly one for Sir Clive

Now with Sinclair at an all-time low, Amstrad is on a high So far Amstrad has shied away from meeting Sinclair head-on but it must now be looking to compete directly with the Spectrum It wouldn t take much for Amstrad to produce a version of its CPC 464 without monitor or cassette player at a price that Sinclair would now find very hard to match

For almost a year now, Sinclair has been following rather than leading

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Computer Trade Association Magazine of the Year

Firebird set to enter US market

FIREBIRD British Telecom's games software publishing arm, may enter the American software market

"We have conducted extensive research on the US market, and we are looking at the possibility of opening an office in the New York area," said Firebird's Herbert Wright

If Firebird goes ahead with its plan it will become only the fourth British software company to have a US office Of the others – Mastertronic, Quicksilva and Softek – only Mastertronic has made any real impact

Firebird is also to publish games for the new US micros, the Atari 520ST and Commodore Amiga. The company has begun development of an arcade-style title for the new machines With the working title of *Star Glider* the game is rather like *Elite* but without the trading aspect and will feature fully three-dimensional images in colour, rather than line vector drawings

● Meanwhile, the conversions of Ultimate's *Sabre Wulf* and *Knight Lore* for the Commodore 64, for which Firebird licensed the rights earlier this year, are nearly finished. "We are hoping to have them out within this month," confirmed Herbert, "but that's not 100 per cent definite – we want to get Ultimate's seal of approval on the conversion work"

Amiga and ST support

◄ continued from page 1

Personal Computer World show

The Amiga packages range from entertainment to languages and business packages

Infocom hopes its Amiga titles will be ready next month, including the *Zork* trilogy, *Suspect*, *Deadlines*, *Planetfall*, *Suspended* and *The Hitchhiker's Guide to the Galaxy*

Also in the entertainment field, Electronic Arts is converting its range

Some programs are designed specially to take advantage of the Amiga's graphic and sound capabilities Cherry Lane Technologies has written *Harmony*, a musical accompaniment package, and has *Scorewriter* a musical score printing package in development for January 1986 *Musicraft* from Everywave will turn the Amiga into a four-voice synthesiser and sequencer when it is launched in October

The Island Graphics Corporation has produced *Presentationcraft*, a business graphics package intended to be particularly useful for business presentations, *Moviecraft* an animation package, and *Graphicraft* a painting and art program.

However, Amiga software is not going to be cheap "I would think that prices will be in the region of between $40 (£30) and $150 (£110)," said a Commodore-Amiga spokesman

For the ST machines, Atari is planning a large display at

Relaunch for the Nascom 2

ONE OF the earliest home computers ever to be produced in this country – the Nascom 2 – has been relaunched.

The Nascom was one of the computer industry's first casualties, but the original micro in kit-form first went into production even before the Sinclair ZX80

Nascom 2 is now being offered in board-form only, although manufacturer Lucas Control Systems is offering additional memory, graphics controllers, and hard and floppy disc controllers as extras

The basic board costs £310 Details from Lucas at Welton Road, Wedgnock Industrial Estate, Warwick CV34 5PZ (0926 497733)

Amstrad to release comms interface

AMSTRAD is to release an RS232 serial interface add-on for its CPC micros which will enable them to be easily linked up to a modem.

The new peripheral will sell for around £50 and will work on the CPC464, CPC664 and CPC6128

It will be launched in "a couple of weeks", an Amstrad spokesperson said.

Ocean plans range of business titles

OCEAN is likely to be publishing "cheap and cheerful" business software, says managing director David Ward.

The decision is a departure for the company which – along with its other off-shoots Imagine and US Gold – has so far only published entertainment titles

"Now that there are retail chains like First Computer around which cater specifically for business users, there is an opening into the market for us," commented David Ward

"We'll probably be launching a range of CP/M material first, and then license them in the States," he suggested Interestingly, he added that he was thinking about CP/M games as well as straight business software – "I see a cross-over," he said

Atari 260ST and Spectrum 128K

◄ continued from page 1

A Sinclair spokesman denied that any new Sinclair model would be previewed

the *Personal Computer World* show with software houses invited to show their ST software as part of Atari's stand

Firebird, Ocean, Talent Computer Systems and Metacomco are among the companies planning to accept Atari's invitation.

The list of companies working on ST software now includes Llamasoft, Mirrorsoft, English Software, GST, Intelligent, Microdeal and Softek

"The 520ST will have a wider range of software than any other micro at launch," claimed Rob Harding of Atari UK

in September "We will be showing the QL and its latest software and the Spectrum Plus pack, but I'm not aware of any new products being shown," he said

Atari's 260ST model, to be shown in this country for the first time at the show, is the company's 256K version of its 68000-based ST range, featuring a built-in 3½inch disc-drive (see *Popular Computing Weekly*, June 4)

The US price for the model has been fixed at $499

"We will be showing both the 260ST and our CD Rom player at the show," confirmed Rob Harding, Atari UK's sales and marketing manager

"We've not yet finally decided which version of the 260ST the stand alone model or the one with a built-in disc drive, to put out, but I suspect it'll be the built-in drive version that will appear We're hoping to launch the CD Rom player here before the year end"

Greatest hits tape released by Virgin

VIRGIN is to release a compilation of six best-selling games on one cassette this month, entitled *Now Games*

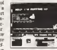
"We've taken a leaf out of our record company's sleeve and produced a sort of software hot hits," explained Nick Alexander, Virgin Games' general manager

The six titles on *Now Games* are *Brian Bloodaxe* (The Edge) *Lords of Midnight* (Beyond), *Strangeloop* and *Falcon Patrol II* (Virgin), *Arabian Nights* (Interceptor) and *Everyone's Wally* (Mikro-Gen)

Virgin boss Nick Alexander

The package will be available for both the Spectrum and Commodore 64 and will retail for £8 95

"Quite a few companies are working on compilations at



Strangeloop

the moment," said Nick Alexander "I think after seeing the success of *Soft Aid*, we were convinced that compilations could be popular, although obviously *Soft Aid* was a special case "

The individual companies will each get royalties on sales of *Now Games*, and Virgin hopes to bring out a series of compilation tapes from various companies embracing various themes

Budget titles dip below £1

BUDGET software prices are continuing to fall with a new range being released – costing only 99 pence

Central Solutions has released four titles at that price for the Spectrum

Crystal Quest is a text-only adventure, *A Tangled Tale* is a graphic adventure and *Valley of the Dead* and *Devils Descent* are both arcade-style games

Eleven further text-adventures are planned by Central Solutions for release in August, also at 99 pence, and a Qh adventure at £2 99

Details from Central Solutions 500 Chesham House, 150 Regent Street, London W1 (01-624 1389).

Super titles for Christmas

BEYOND HAS announced five new titles to be out by Christmas, including the much heralded *Superman*, licensed from US firm First Star

Superman will be an arcade-style game with the player as Superman fighting against his arch enemy Darkseid The game will feature sophisticated animation and be released for Commodore Atari, Amstrad and Spectrum machines

The other titles include *Nexus*, which is the name of both game and label, launched as a range of titles written by Paul Voysey and Tayo Olowu, authors of *Psytron* and *Psi Warrior Nexus* is a graphic adventure for the Spectrum and C64

Iron Heroes, a futuristic gladiator fight by the Shadowfire team Denton Designs, will be on the Monolith label, for the C64 and Spectrum and *Enigmaforce* and *Eye of the Moon* on Beyond The latter is the final part of Mike Singleton's *Lords of Midnight* trilogy

Beyond also hopes to bundle the full trilogy as one package, although the details have yet to be finalised All the games will cost £9 95

Letters

Annoying

I've been reading your magazine for a month now and find the style of your reviews annoying.

Would reviewers kindly remember that we readers are not interested in their opinions, but in their observations from which to formulate our own opinions.

N Jealous
18 Arthur Street
Cardiff

It is difficult to make sensible observations about a program without offering some kind of opinion. Personally, I've always felt that the kind of reviews which don't nail their opinions firmly to the mast usually aren't worth reading.

Mental effort

Your magazine has from time to time printed letters deprecating those who use their home computers for playing games. H G Jones' letter (July 25 issue) is a particularly reprehensible example.

There is nothing inherently unhealthy in playing computer games any more than there is in reading, watching television, listening to music, seeing a film or play need I go on? All thees activities can be entertaining, enlightening and, frequently, educational.

Modern computer games have as close an affinity to *Snakes & Ladders*, *Ludo* or *Mousetrap* as does the Post Office Tower to a mud hut. The board games that I know of which require a serious mental effort can be counted on the fingers of both hands. The only skill involved in the games quoted by H Jones is the ability to count from one to six they are, in fact, games of almost pure chance. Just try to solve a game such as *Knight Lore* with a similar amount of skill!

No, there is nothing clever about punching a few keys to play a game (I press mine, I do not 'punch', 'hit' or 'strike' – the keyboard lasts longer). The cleverness with many computer games, particularly the modern adventures and arcade adventures, lies in determining the object of pressing the keys, which keys to press and when during the game to press them. I find that playing *Boulder Dash* requires more mental effort than does playing *Reversi*, my favourite board game.

I fail completely to understand why a computer game should be expected to contribute to the computing knowledge of the player. Most are not designed for that purpose, they are designed to entertain and that, I find, they do very well.

I'll stick to zapping rampaging toilet seats.

W Thompson
2 Sandon close
Sandy
Beds

Extra command

Those readers who posses the Amstrad DD-1 disc drive may be interested to know that I have discovered a sixth CP/M direct console command. The command is *'User N'* where *N* is the number of the user that you wish to enter (between 0 and 15).

The DD-1 user manual states that there are only five direct console commands (*Save*, *Dir*, *Era*, *Ren* and *Type*). This undocumented command may be of use to some Amstrad disc users.

D Halliwell
4 Heatherdale Close
Oxten
Birkenhead
Merseyside

It's a 4M bank switched machine and I've forgotten which block I put my 48K program in!

Ingenious...

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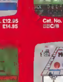


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PCW



Random race

Program *Pole Position* **Micro** Spectrum 48K **Price** £7 95 **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham B7

This is another nail in the coffin for those who support the theory that a hit game on one machine will be equally as good once converted to another

My fears were confirmed by finding the Commodore screen shot on the back of the Spectrum cassette box!

Once loaded, it is soon apparent why Clearly, this is a sad version of that popular arcade classic that was a hit on the Commodore. All the features of the original are here, the pre-qualifying phase, the race itself, best times and high score tables, etc, but the quality of the programming leaves a lot to be desired The movement is jerky and the car has no 'feel' to it As for the other competitors' cars, apart from suffering severe attribute problems, they just appear at random and are passed with ease, hardly the "nerve shattering danger" that was promised on the inlay

The game may have been good a couple of years back, but nowdays we've all seen the graphics that the Spectrum is capable of (ie, *Chequered Flag*) and this just doesn't do it justice It's about as entertaining as changing a flat tyre in a storm

Andy Moss

Burnt up

Program *Desert Burner* **Micro** Spectrum 48K **Price** £2 50 **Supplier** Creative Sparks, Thompson House, 296 Farnborough Road, Farnborough, Hants

This is another in the Sparklers budget software range and involves guiding a motorbike along a scrolling road, jumping over lorries, cars, trees and pits whilst avoiding helicopters which are out to bomb the bike

Fortunately, on the front of the bike is a fast action cannon which despatches the helicopter with gay abandon

As the sun in the top right of the screen slowly sinks, day turns into night and the whole process continues until you finally deliver the mandatory 'secret plans' to a band of freedom fighters

The trouble with this game is its lack of variety It becomes boring jumping over the same things all the time

Even allowing for the £2 50 price, it is a disappointment

Andy Moss

All at sea

Program *North Sea Bullion Adventure* **Micro** Amstrad **Price** £3 95 **Supplier** Kuma Computers, Pangbourne, Berks

I've always thought that a lot of adventure software is overpriced – there are of course exceptions but often the quality of programming and the amount of development time needed fall far below that of the leading arcade games – so it is a



welcome development to see Kuma producing a pair of adventures as the first releases on their budget range

Shadow of the Bear and *Bullion Adventure* are both written in Basic, both hybrid adventure/strategy games and both written by the same people. I looked at *Bullion Adventure* and found it a reasonably entertaining game The idea is to locate and loot a shipwrecked boat and to do this involves stocking your ship with your choice of equipment, navigating perilous straits etc Control of movement is via the cursor keys, and whilst there is text input this is largely limited to a very few options

Although the strategy elements may give it more potential for long term play than some adventures, the programming has some unnecessary weak points It desperately needed someone to sit down and play the thing for a while to produce a list of refinements The instructions are on screen for *ages*, why no 'press any key' option? The graphics, whilst large and colourful, start to grate when they redraw after every move, even when the picture is the same The list of things to buy include 'fuel' – type *Buy Fuel*, it says you can't – it's only when you type *Buy Fuel Oil* that it lets you The game also suffers from overuse of the Random function – too many sudden disasters for my liking

A few niggles, but not bad for the price

Tony Kendle

Time travel

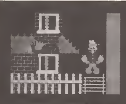
Program *The Amulet* **Price** £2 50 **Micro** Commodore 64 **Supplier** Sentinent Software, Branch House, 16 Branch Road, Armley, Leeds LS12 3AQ.

An unusual marketing policy, this – on one side of the tape is the Spectrum version, on the other is the Commodore program I'm sure we'll see a lot more of this in the future as companies try to economise

The object of *The Amulet* is to travel through time in an attempt to locate the seven parts of the shattered amulet With this in mind, you approach a river On the bank is a fishing rod. Let's try a spot of fishing Well, lo and behold! Hooked on the end of the line is a broken, dirty old amulet After a bit of thinking, you decide to clean it Before you can say *Popular Computing Weekly* you are whisked away across the time streams into another distant location and time. How's that for progress?

The Amulet is a traditional, text-only adventure. While the descriptions aren't as detailed and atmospheric as, say, Level Nine's adventures, the author seems to make up for this with plenty of creative flair On your travels you will come across many weird and wonderful things ranging from giant insects to a farmhouse containing garlic, onions and a book about monkeys For a change, the adventure doesn't involve lots of monster-bashing, blood and violence (unlike some adventures where you have to kill two orcs before breakfast) The computer also appears to be rather witty and cryptic in places. (For example, it points out what a wally you look carrying a fishing rod across the desert) In conclusion a decent adventure at a very reasonable price

Tom Hussey



Cartoons

Program *Popeye* **Micro** Spectrum 48K **Price** £5.95 **Supplier** DK Tronics, Unit 2, Shire Hill Industrial Estate, Saffron Walden, Essex.

Did you know that there's a statue to *Popeye* in the USA, erected by the Spinach Growers of America?

Such is the power of the perennial cartoon jack tar in his constant battle for the heart of Olive Oyl against bullying Bluto

His computer debut was announced some time ago and now appears from DK Tronics who have taken the arcade adventure path, but instead of tiny figures and lots of platforms they've gone for characters who are almost half the screen tall Although their movement is more jerky than in *Dun Darach* they boast solid colour and avoid most attribute problems It's all very much like watching a cartoon film.

The 'plot' is suitably faithful too Popeye has to collect hearts which he takes to Olive who kisses him wildly, so increasing his score There are also keys to unlock doors (but which particular doors?) and spinach (natch!) which revives our hero when he bumps into Bluto or any other enemy who will bop him.

Now the inevitable 'but' The trade off for the large characters is lack of screen space There are several levels of depth but no real way of judging which plane Bluto, et al, are in. Collisions are all too frequent and you'll need all your strategically conserved spinach for situations where KOs are inevitable

So unless I've missed something this plagues an otherwise interesting adaptation of a cartoon character Arf, Arf!

John Minson

More Willy

Program *Jet Set Willy II* **Micro** Spectrum 48K **Price** £6.95 **Supplier** Software Projects, Bearbrand Complex, Allerton Road, Woolton, Liverpool 25 7SF

So what have we here? Not just another clone of Manic Matthew's Moneyspinner but the second coming of Surbiton's most famous (subterranean) son, millionaire Miner Willy

Firstly feelings of deja vu, because far from being an all new game this is in fact an expansion of the indisputable classic Here they are again all those jumping, timing and collecting problems we've grown to know and tear our hair at maybe even beat by this time But the mansion has been extended to include previously unreachable areas and even a space ship, which is the nearest piece of shuttle cock (and bull) I've seen all week

Well, it was heaped with praise in its time but the best of the multitude of imitators have actually added to its charms, so how does *JSW* rate today? I'm pleased to report that it's still as maddeningly addictive as ever Of course whether the new version is worth purchasing is up to you The (non-Smith) additions seem neat enough but do they really warrant the purchase of a new game?

If you don't already own an original (where have you been?) or your copy's worn out, I'd say buy Otherwise there are lots of new, equally worthy programs Still there are probably hundreds of you waiting to work out the *Pokes* for this new version!

John Minson

Body blows

Program *Frank Bruno's Boxing* **Price** £6.95 **Micro** Spectrum 48K **Supplier** Elite Systems Limited, Anchor House, Anchor Road, Aldridge, Walsall, West Midlands

Mmmf mmgr rgrf... sorry, I'll take my gum shield out! Well, no sooner has your heavyweight reviewer taken on Gremlin's *Rocco*, which went down in two, than a bout with *Frank Bruno* arrives So it's on with the gloves, seconds out and

Round one Elite's man comes out fighting and he's much more versatile He knows, and uses, head and body blows, left and right, dodges to either side, ducks and, when the opponent is almost dead on his feet, delivers a neat uppercut that knocks him somewhere into the middle of next week

Round two He's not looking so good now In fact the animated graphics are less good than *Rocco* but apart from the odd confusing aspect they do the job

Round three One opponent vanquished but seven more wait to be Loaded using individual access codes The result is that not only do they look different (unlike *Rocco*) but they also fight differently The Canadian Crusher is a dumb bruiser but Fling Long Chop from Japan is a nifty character, among deadly karate kicks.

The bell I soon got used to the eight keys used and found the speedy pounding involved most satisfying With its extra options and variety of fights *Frank Bruno* is current champ

John Minson

Compilation

Program *Pascal 80* **Price** £39.99 **Micro** Amstrad plus disc and CP/M/Tatung Einstein **Supplier** HiSoft, 180 High Street North, Dunstable LU6 1AT

Program *Pascal* **Price** £29.99 **Micro** Amstrad **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex

Through CP/M, Amstrad owners have theoretically been given access to at least a dozen attempts at a Pascal compiler including one from HiSoft which wrote the official Amsoft Pascal

Aside from the price, what is there to choose between them?

The Pascal 80 implementation is not only cheap for a disc CP/M version, but it is also the closest to the standard, which is probably a good thing for educational use

On the other hand, for those who are making their first steps up from Basic, Amsoft's Pascal is probably the best bet since you don't have to accomodate the idiosyncrasies of the CP/M disc operating system at the same time It has also been tailored to make it as easy as possible to achieve similar effects to those available from Basic –

sound, graphics, interrupts etc While you also get extras like turtle graphic procedures, it is more limited in other areas – notably the file handling which is better on Pascal 80 Only character files can be used and they are accessed serially, not randomly Graphics and sound are of course not easily available from CP/M but again HiSoft have provided some predefined routines that expand on the defined core language, eg. *Peek, Poke, Addr*, and some mathematical functions.

Amsoft Pascal stands out for its better hardware interface Conversely Pascal 80 can be used to produce running CP/M Com files without the need to learn anything about the appropriate Bdos calls for printing to screen, etc

Amsoft Pascal has a line editor similar to Basic with some additional commands whilst the excellant *Wordstar*-compatible *ED80*, familiar to users of *Devpac 80*, is provided with the CP/M disc You can of course use separate editors or word processors if you wish HiSoft's documentation is of a high standard but tends to be of reference value rather than pampering to the beginner Amsoft's version is similar but slightly better in that respect

In both cases you would do well to look for one of the 'teach yourself' books recommended.

If you are looking for an Amstrad version of Pascal either of these packages could be a good choice – the Amsoft version is a bit easier to get to grips with, though.

Tony Kendle

Health risk

Program *St Crippens* **Micro** Spectrum 48K **Price** £2 50 **Supplier** Creative Sparks, Thompson House, 296 Farnborough Road, Farnborough Road, Farnborough, Hants

What a funny game this is Here you are, cast as a patient interned in the infamous St Crippens hospital after a minor accident

Your aim is to escape as soon as possible, but of course it is not easy Not only are you pursued by doctors, nurses, and ambulancemen, but hazards such as bed pans, ladders and the odd disease, all there to hinder your exodus

This is basically a *Pac-man*-type maze game but with many different mazes comprising of hospital wards You have to manoeuvre your little figure around the various beds and furniture, through such obscure places as the 'Tropical Diseases Ward' and 'the games room' etc A nice touch is once up to 80% damage your figure hobbles around on crutches

The graphics are very simple but nicely drawn and, above all, sometimes funny

This game is a bundle of fun and great value for money

Andy Moss

Road runner

Program *The Great American Road Race* **Micro** Commodore 64 **Price** £9 99 **Supplier** Activision, 15 Harley House, Marylebone Road London NW1

At first glance this race game is disappointing, with a seemingly sparse screen display and chunky graphics but, as you progress into the game, it grows into a veritable gem

The idea is to road race across America from east to west using one of four different routes planning the quickest way city by city for each You have to take into account weather conditions, time of day, rush hour traffic, police speed traps, while keeping a check on petrol and engine revs Driving is the usual joystick left/right, with up and down for changing gear, and the track is the standard 3D *Pole Position* style layout.

Although the other cars on the road are all rather similar, it doesn't matter as your attention is focused on the changing landscape, day turning into night and the approaching skyline of the cities

This is where the charm of the game comes into its own as each city has its own landmark, for example San Francisco's Golden Gate Bridge The times of eight pre programmed drivers are already fixed and these are your targets to beat However, new times can be added from tape Sound is used well and the graphics are smooth and effective An addictive game with a style all of its own which lets you tour America from your armchair

Another winner from Activision

Andy Moss

Croak croak

Program *Crystal Frog* **Micro** Spectrum 48K **Price** £2 99 **Supplier** Sentient Software, Branch House, 18 Branch Road, Armley, Leeds, West Yorkshire LS12 3AQ

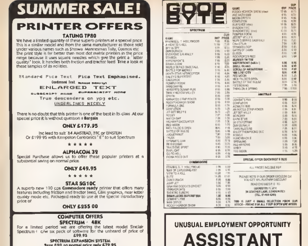
The background to *Crystal Frog* is terse find the crystal frog, visit all the locations and score 100%

Well, it is a budget adventure, but neglecting to mention that it's been *Quill*-ed is rather naughty

With that off my chest I'm pleased to report that this particular quest doesn't stint on words From the very first location (a clearing in a grassy field on a summer's day with a cloudless sky with circling birds above) the eye of the imagination is most pleasingly stimulated.

A traditional not desperately original but atmospheric adventure at a price which won't leave a frog in the throat

John Minson


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Communicator

Hardware *QCom Modem* **Micro** QL **Price** £219.85 (Q-Connect plus software £89.95, Q-mod £79.95, Q-call £49.95 – units available separately) **Supplier** Tandata Marketing, Albert Road North, Malvern, Worcs (06845 68421)

Sinclair has not had a good year so far but – at long last – there is a communications package available for QL owners who wish to link up to the outside world.

When OEL went bust a few months ago the company's planned QL communications unit went out of the window. But Tandata took over the project to the relief of all concerned.

According to Tandata, orders left over from OEL's bankruptcy are being fulfilled and the package is now available to others, direct from Tandata Marketing in Malvern.

Tandata's package actually consists of three separate units: Q-Connect, Q-Call and Q-Mod. Q-Mod is the modem enabling communications at 1200/75 baud (full duplex) and 1200/1200 baud (half duplex) for QL to QL communications. The 1200/75 baud operation is for accessing databases such as Prestel and VT-100 facilities such as Telecom Gold. Q-Call is an auto-dial/auto-answer unit. Auto-answer is chiefly for QL to QL communications and the automatic transfer of files and other data.



Q-Connect is the key to the system. It is an intelligent interface supported by an extensive software package loaded into the QL by microdrive. Q-Connect operates between 75 and 9600 baud and will support most asynchronous modems – a fact which should go a long way to satisfying those sceptical of Q-Mod's somewhat limited range of communications. The software is impressive and contains a wide range of features including telephone director, a mailbox menu, a CET telesoftware down-loader, Load/Save facilities, file transmission and data encoding/decoding features.



Q-Call and (if the buyer links Q-Connect to another modem) Q-Mod are optional but, when joined, form a compact unit offering just about all the facilities an up-to-the-minute "off line" QL owner could wish for, at a total price of just over £200.

Each unit is designed in the QL-style and is made of the same black plastic. The three are linked in a neat stacking system with Q-Connect as the base and joined by vertical bus connectors. My only real criticism is – since the bus connectors are the only thing holding the three units together – there is a real danger of damage from slightly careless handling.

Tandata is actually the second company to put out a QL modem. Modem House has produced Bright Star, an intelligent modem which (for the moment) lacks an auto-dial facility, but has a wider range of communications and costs roughly the same – £179.95. The Q-Com package without Q-Call costs £169.90.

I have not had an opportunity to try the Modem House product so I can't make comparisons, but Tandata's Q-Com device functioned well and makes a very neat-looking addition to your QL.

Tandata has successfully rescued a package originally designed for the computer, and one which offers most owners all they need to link their silent QLs into the world's electronic information pool.

Brian Beckett

Drawn out

Hardware *Graphics Light Pen* **Micro** Amstrad CPC 464 **Price** £24 95 **Supplier** DK'Tronics, Unit 6, Shire Hill Industrial Estate, Saffron Waldon, Essex CB11 3AQ (0799 26350).

Who was it that said that there's a novel inside every one of us, just waiting to be written?

Well, if that's the case then there ought to be a picture inside of each of us just waiting to be drawn.

The problem is, of course, while most of as can write – although the spelling ought not be too good – drawing is another matter completely Artistic ability seems often almost inversely proportional to programming skill.

Maybe DK Tronics new light pen for the Amstrad could be the answer

Light pens work using the principle that each part of the TV screen is refreshed (or up-dated if you like) every 1/25th of a second – a ridiculously long time for a microprocessor The processor calculates the time from the start of a new TV scan to the time the scan reaches and triggers the 'pen' sensor pointed at the screen By calculating the time interval the micro can work out exactly where on the screen you are pointing If you want to do something like drawing, then you are thrown on the mercy of the accompanying software and documentation DK'Tronics seems though to have done a pretty good job with this package

The light pen plugs into an interface that itself slots into the disc drive port of the Amstrad Don't worry, though – there is a piggy-back port on the back that supports a disc drive (if you have one) and a DK'Tronics speech unit at the same time.

The first thing to do is load the software This takes about four and a half minutes, but the cassette is totally unprotected, so it can be transferred to disc without too much bother

You are now ready to start The program works by moving through a series of menu windows which start with Save/Load screen options, and go on through calibration of the pen to the actual graphics options – a total of eight in all You soon get used to 'the system , but to help the documentation provides a small flow diagram. a nice touch.

The basic Draw functions support ten colours with four drawing widths, plus an air-brush effect – more than enough for most dabbling Slightly more advanced features include 'rubber banding' for drawing complex shapes, fills, circle and rectangle commands, copy and shrink options, plus text handling A 'scratch pad' facility is useful, which allows you to create detailed drawings, and then reduce them down and use them on your opus

So far so good, and the documentation takes you through the program one step at a time

The last few pages of the manual give listings for dumping screens to DMP 1 or Epson compatible printers, with detailed advice on adapting them for other printers Also, it gives valuable help on how to use *Saved* screens and/or the light pen in programs of your own. It's a pity that you have to type these routines in yourself though

If you want an artistic dabble on your Amstrad, then this is for you But don't expect the level of detail and quality obtainable from a graphics tablet.

John Cook



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You can do it!
beginning machine code on the commodore 64
a simple introduction for beginners
david lawrence & mark england
You don't have to have a wet towel wrapped round your head and a bottle of asprin at your side to learn to program your Commodore 64 in machine code — there is an alternative method. By concentrating on simple concepts, and by explaining every step carefully, with plenty of examples, David Lawrence and Mark England show it to you in their book Beginning Machine Code on the Commodore 64.
Although it can be difficult to become fully proficient in machine code programming, each instruction, in itself, is relatively simple to understand. The authors are careful to bring out this in their approach, showing clearly and carefully what each instruction does and how it is used. Then, when you feel more confident as a machine code programmer, you can begin to construct more and more adventurous routines from a collection of the simple individual instructions.
David Lawrence and Mark England are experienced machine code programmers on the Commodore 64, being authors of Machine Code Graphics and Sound for the Commodore 64 and The Commodore 64 Machine Code Master, but not so experienced that they have forgotten the pitfalls and confusing points that await the beginner.
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Trapper

It's you against the Evil Kraalian on the CBM 64 – written by R Beaven

Trapper runs on a Commodore 64 with a joystick in Port One. The idea of the game being to trap the Evil Kraalian.

At the start of the game a random maze is drawn, then the Kraalian appears, followed by a green man which you control.

The Kraalian will immediately bound around the maze in a berserk fashion – you must manouvre him into a three sided box, closing the gap with yourself. He then dies, and you are presented with another, harder maze – this must be finished within a time limit of course! Good luck!

Program Notes

Line No	
10 - 54	Display title screen
55 - 67	Accept input
58	Read UDG data
67	Define Char 22 as space
68	Read UDG number data
70 - 181	Character data
205 - 218	Draw boxes round screen
230 - 245	Fill screen randomly with boxes
260 - 280	Display Kraalian
290 - 298	Display Player
300	Update time
310 - 365	Update Kraalian position
1000	Endgame check
1001 - 1030	New direction
1050	Choose random loop entry point
1070 - 1110	Direction choosing loop
5000 - 5070	Sound effect routine
6000 - 6040	Joystick input
6100 - 6420	Player movement
7000 - 7025	Completed level routine
8000 - 8060	End game



```
10 POKE53272,21 POKE53280,0 POKE53281,0 PRINT"
20 PRINT"
30 PRINT"
40 PRINT"
50 PRINT"
51 PRINT"
52 PRINT"                                    BY"
53 PRINT"                  R. BEAVEN"
54 PRINT"               JOYSTICK OR KEYBOARD?"
55 GETA$ IFA$=""THEN55
56 IFA$="K"THENPRINT"     HARD LUCK,IT ONLY WORKS
   WITH JOYSTICK   (PORT ONE)"
57 IFA$="J"THENPRINT"     INSERT JOYSTICK IN PORT
   ONE"
66 FORT=0TO87 READA POKE14306+T A NEXT
67 FORT=0TO7 POKE14336+T+8*32,0 NEXT
68 FORT=0TO79 READA POKE14336+T+8*48,A NEXT
69 FORT=0TO7 READY(T) NEXT
70 DATA126,219,219,255,255,189,195,126
75 DATA126,219,211,227,195,149,195,126
80 DATA70,129,0,0,1,0,128,38
85 DATA24,24,126,185,153,36,36,102
90 DATA0,234,75,74,74,74,0,0
95 DATA0,46,104,172,40,46,0,0
100 DATA0,0,16,0,0,16,0,0
101 DATA0,142,136,140,136,139,0,0
102 DATA0,139,138,83,32,35,0,0
103 DATA0,160,33,32,35,185,0,0
104 DATA0,0,0,0,0,0,0,0
105 DATA127,65,65,65,65,65,127,0
110 DATA8,8,8,8,8,8,8,0
115 DATA126,1,1,7,28,112,127,0
120 DATA126,1,1,31,1,1,126,0
125 DATA72,72,72,127,8,8,8,0
130 DATA127,64,64,126,1,1,126,0
135 DATA1,1,1,126,65,65,62,0
140 DATA127,1,1,2,2,4,4,0
145 DATA127,65,65,127,65,65,127,0
150 DATA63,65,65,63,1,1,1,0
151 DATA127,127,127,127,127,127,127,0
155 PRINT"" POKE53272,31
156 REM ****************************
160 C=54272 N=1 SS=54272 Q=1528 W=Q-15 E=INT(RND(1
   )*4)+1 SC=0
200 Q=1528 W=Q-15 PRINT"" FORT=1064TO1103 POKET,1
   0 POKET+C,14 NEXT
205 FORT=1143TO2023STEP40 POKET,10 POKET+C,14 NEXT
210 FORT=2022TO1984STEP-1 POKET,10 POKET+C,14 NEXT
215 FORT=1944TO1104STEP-40 POKET,10 POKET+C,14 NEX
   T
220 FORT=0TO7 POKE14335+T+80,255
221 A=7 D=1 S=0 P=0 LO=(227+T) HI=22+(T*2) WA=17 G
   OSUB5000 FORM=1TO50 NEXTM
222 NEXTT
225 PRINT"DEF000000                           ON1"
   ,N
230 FORT=1TO210-(N*20)
235 X=INT(RND(1)*960)+1
240 IFPEEK(1105+X)<>32THEN235
245 POKE1105+X,10 POKE1105+X+C,14 NEXT
250 A=1 D=1 S=0 P=0 LO=1 HI=10 WA=129 GOSUB5000
255 FORT=0TO7 POKE14336+T+80,Y(T) NEXT
260 POKEQ+C,10
265 FORT=2TO0STEP-1
270 POKEQ,T FORM=1TO200 NEXTM
275 FORJ=1TO8 A=0 D=0 S=3 R=0 LO=INT(RND(1)*103)+1
    HI=INT(RND(1)*244)+1 WA=17
280 GOSUB5000 NEXTJ,T
285 POKESS+4,0 FORT=1TO100 NEXTT
290 A=1 D=1 S=1 R=1 WA=33 HI=10 LO=10 GOSUB5000
295 POKEW,3 POKEW+C,5 FORM=1TO500 NEXT FORT=SSTOSS
   +24 POKET,0 NEXTT
299 TI$="000000"
300 PRINT"",TAB(4),TI$,TAB(37),N Z=PEEK(56321) IF
   TI$="000100"THEN8000
310 ON E GOTO350,360,370,380
350 IFPEEK(Q-40)<>32THEN1000
355 POKEQ,32 Q=Q-40 POKEQ,0 POKEQ+C,10 GOTO6000
360 IFPEEK(Q+40)<>32THEN1000
365 POKEQ,32 Q=Q+40 POKEQ,0 POKEQ+C,10 GOTO6000
370 IFPEEK(Q-1)<>32THEN1000
375 POKEQ,32 Q=Q-1 POKEQ,0 POKEQ+C,10 GOTO6000
380 IFPEEK(Q+1)<>32THEN1000
385 POKEQ,32 Q=Q+1 POKEQ,0 POKEQ+C,10 GOTO6000
1000 IFTI$="000100"THEN8000
1001 IFPEEK(Q-40)=32THEN1050
1010 IFPEEK(Q-1)=32THEN1050
1020 IFPEEK(Q+40)=32THEN1050
1030 IFPEEK(Q+1)=32THEN1050
1040 GOTO7000
1050 E=INT(RND(1)*4)+1
1060 ON E GOTO1070,1080,1090,1100
1070 IFPEEK(Q-40)<>32THEN1080
1075 POKEQ,32 Q=Q-40 POKEQ,0 POKEQ+C,10 GOTO6000
1080 IFPEEK(Q+40)<>32THEN1090
1085 POKEQ,32 Q=Q+40 POKEQ,0 POKEQ+C,10 GOTO6000
1090 IFPEEK(Q-1)<>32THEN1100
1095 POKEQ,32 Q=Q-1 POKEQ,0 POKEQ+C,10 GOTO6000
1100 IFPEEK(Q+1)<>32THEN1110
1105 POKEQ,32 Q=Q+1 POKEQ,0 POKEQ+C,10 GOTO6000
1110 GOTO1070
5000 POKESS+4,0 D=A*16+D SR=S*16+R
5010 POKESS+24,15
5020 POKESS+5,AD
5030 POKESS+6,SR
5040 POKESS+0,LO
5050 POKESS+1,HI
5060 POKESS+4,WA
5070 RETURN
6000 REM ******************************
6010 IFZ=254THENGOTO6100
6020 IFZ=253THENGOTO6200
6030 IFZ=251THENGOTO6300
6040 IFZ=247THENGOTO6400
6050 GOTO300
6100 IFPEEK(W-40)<>32THEN300
6110 POKEW,32 W=W-40
6120 POKEW,3 POKEW+C,5 GOTO300
6200 IFPEEK(W+40)<>32THEN300
6210 POKEW,32 W=W+40
6220 POKEW,3 POKEW+C,5 GOTO300
6300 IFPEEK(W-1)<>32THEN300
6310 POKEW,32 W=W-1
6320 POKEW,3 POKEW+C,5 GOTO300
6400 IFPEEK(W+1)<>32THEN300
6410 POKEW,32 W=W+1
6420 POKEW,3 POKEW+C,5 GOTO300
7000 FORK=100TO150
7001 A=1 D=1 S=0 R=1 WA=33 HI=K LO=K GOSUB5000
7002 FORM=1TO10 NEXTM,K
7003 A=5 D=5 S=5 R=5 HI=40 LO=50 WA=33 GOSUB5000
7004 FORT=0TO2
7005 POKEQ,T FORJ=1TO200 NEXTJ,T FORJ=1TO200 NEXTJ
   POKESS+4,0 POKESS+24,0
7009 BO=1000*N SC=SC+TI SC=SC+BO SC=INT(SC)
7010 PRINT"" POKE53272,21 SC=SC+BO
7011 PRINT"  WELL DONE,YOU HAVE 'TRAPPED'THE EVIL
   KRAALIAN "
7013 PRINT" YOU GET A BONUS OF ",BO
7014 PRINT" WHICH MAKES A SCORE OF ",SC
7015 FORT=1TO10 NEXT K=255
7025 PRINT"              PRESS  FIRE   "
7050 K=PEEK(56321)
7055 IFK=239THENGOTO7090
7080 GOTO7050
7090 PRINT"" POKE53272,31 N=N+1 GOTO200
8000 FORF=15TO0STEP-1
8002 A=2 D=5 S=2 R=1 WA=129 HI=F LO=F GOSUB5000 PO
   KEN+C,F
8003 FORT=1TO15 NEXTT,F
8004 PRINT"" POKE53272,21
8005 PRINT"THE EVIL KRAALIAN HAS BEATEN YOU"
8006 PRINT"WITH A SCORE OF ",SC,"PLUS A BONUS"
8007 PRINT"OF ",BO," WHICH MAKES ",SC+BO," POINTS"
8020 PRINT"   DO YOU WANT ANOTHER GAME (Y/N)
8030 GETG$ IFG$=""THEN8030
8040 IFG$="N"THENEND
8050 IFG$<>"Y"THEN8050
8060 PRINT"" POKE53272,31 GOTO160
```

Getting a word in edgeways

*More text compression techniques from the keyboard of **Jeff Tullin***

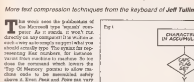


Fig 1

This week sees the publication of the Microsoft type 'squash' computer. As it stands, it won't run directly on any computer! It is written in such a way as to simply suggest what you should actually type. The syntax for representing Hex numbers, for instance varies from machine to machine. So too does the command which lowers the 'Top Of Memory' pointer to allow machine code to be assembled safely above it. Even *Peek* and *Poke* can vary between micros, so it is up to you to arrange the program to suit your machine. This should not prove too hard. The 'dictionary' supplied here is smaller than last week's simply to save space, and you may wish to refer to the last section for a wider explanation.

Once the compactor has run (and this can take a long time – my latest game took over three hours to compress), the program will print some addresses on the screen, such as –

Dictionary from &5200 TO &524C
Text occupies &524C TO &xxyy
Compressed by something %

BBC users, at least, can save the database as a block of memory by the command **save "text" 5200 xxyy*, and then disregard the compactor program entirely thereafter, and just **LOAD* in the block as required. What is important is to keep a record of the address of the start of the dictionary and the text.

But now on to the expander routines. This week, just the theory. We have already replaced common words and phrases by single numbers. What we need to do now is examine the compressed string, byte by byte, and print out normal letters unchanged, but replace the 'special' bytes by the correct keywords. So in effect, what we must do is tell the computer "In future, if you come across the code value of 136, instead of printing it, print the word 'HELLO (or whatever). The same goes for code 137. If this code appears print 'GOODBYE'" – and so on. Working through a list of codes like 65, 136, 66, 137, 67, the computer might thus print out 'A HELLO B GOODBYE C'.

In addition, our expander routine will also begin a new line when it encounters a '#' symbol, and again when it finds a full stop. The full stop will itself signal that the next lower case letter should be made into a capital letter as the beginning of a sentence.

Figure 2 is the main flowchart for the expander, slightly simplified for clarity. For completeness, figure 1 is a flowchart for the small subroutine which will handle adding the capital letters required from time to time. Next week, the final program.

Fig 2

FIND ADDRESS OF REQUIRED MESSAGE
GET 1ST BYTE
GET NEXT BYTE
C. RETURN ? – Y – EXIT
N
FULL STOP ? – Y – PRINT FULL STOP AND SET CAPITAL FLAG
N
HASH ? – Y – START NEW LINE
N
>135 ? – N – PRINT CHARACTER
Y
SUBTRACT 136
FIND ADDRESS OF KEY WORD
PRINT KEYWORD

```
10 REM Text Compactor v 2
20 REM By Jeff Tullin
30 REM Pseudo BASIC for MICROSOFT
40 REM (c) 1985
50 '
60 VARTOP=&5200
70 HIMEM=&5200
80 REM also known as HIMEM,RAMTOP etc
90
100 address=VARTOP
101 dictionary=address
110 tokens=20 pointer=0
120 startlength=0:newlength=0
130 DIM T$(tokens)
140 long$="":short$=""
150
160 POKE address,13
170 address=address+1
180 FOR X = 1 TO tokens
190 READ T$(X)
200 A$=T$(X)
210 GOSUB 500
220 NEXT
230
240 textbase=address-1
250 READ long$
260 IF long$="FINISH" THEN GOTO 410
270 PRINT START ="LEN(long$);
280 startlength=startlength+LEN(long$)
290 S$="":pointer=1
300 FOR X=1 TO tokens:Ax=0
310 IF MID$(long$,pointer,LEN(T$(X)))=T$(X)THENAx=X:X=tokens
320 NEXT
330 IF Ax=0 S$=S$+MID$(long$,pointer,1):pointer=pointer+1:GOTO350
340 S$=S$+CHR$(Ax+130) pointer=pointer+LEN(T$(Ax))
350 IF pointer<LEN(long$)+1 GOTO 300
360 PRINT " NOW "LEN(S$)
370 newlength=newlength+LEN(S$)
380 A$=S$ GOSUB 500 GOTO250
390
410 POKE address,&FF
411 PRINT"DICTIONARY RESIDES & ~dictionary;" to & ~textbase
420 PRINT"SQUASHED TEXT FROM &"~textbase;" to & ;~address
450 PRINT COMPRESSED BY "INT((startlength-newlength)/startlength *100);"%
490 END
491
492
493
500 FOR M= 1 TO LEN(A$)
510 POKE address,ASC(MID$(A$,M,1))
520 address=address+1
530 NEXT
540 POKE address,13
550 address=address+1
560 RETURN
570
580
590 REM    DICTIONARY
600 REM    Entries made in length
           order, ie 10 chars first
           9 chars, then 8 etc
           Max, 119 entries
610 .
620  DATAlies,aid ,the ,all ,see ,wall
,down,must,see ,but ,too ,now ,are ,have
,top ,even,way ,ing
630 DATAyou,and,ly ,key,in ,it , s  e
,th ,the
640 ##################################
650 '
660 REM  PUT LONG TEXTS HERE
670 REM  NB. Text should always be in
         lowercase except for effects
         Full stop causes newline and
         forced caps on next character
         Hash # causes newline only
680 DATA"I can see a large old door to
the South here
690 DATA"there is a key in the lock
can't turn it "
700 DATA a small dusty key lies on the
ground nearby "
710 DATA all around the castle MOAT i
es magic stone "
720 DATA "FINISH
```

Wide vocabulary

Part Two of ZX! Basic written for the 48K Spectrum
by **Stewart Nichols**

This week, more instructions and more code. Remember, instructions on how to type in the code for Parts One and Two were in last week's issue. For those with numb fingers, copies can be obtained from me on tape at £3.00 each. Write c/o 62 **Lays** Drive, Keynsham, Bristol, BS18 2LE.

Instructions

!Mx,y – (Move)
Move from current plot position to co-ordinates *x,y* plotting a line or unplotting as specified by the value of *Over*. Values of *x* and *y* can be from 0 to 255. Note that ZX! Basic pixel grid is used.

For example: **10 !E 20 !P0,88 30 FOR A = 1 TO 255 40 !MA, 88 + 80*SIN(A/64*PI) 50 Next A 60** Pause 0 will plot a sine wave with a continuous line instead of the more usual series of dots that the normal *Plot* command will give.

!N"test",x,y,h,w – (New print)
This command will print text anywhere on the ZX! Basic pixel grid at any height and width combinations within the limits below. Text will wrap around the screen if it is too big to fit in one screen width/height.

"text" – any string of characters code 28 to 127, or any string expression resulting in characters code 32 to 127.

x,y – pixel co-ordinate of the top left hand corner of the first character generator in Rom but may be set to any character generator set in Ram.

h – height of characters in character squares (1 to 32)

w – width of characters in character squares (1 to 24)

!De – (Overall change)
Change the screen attributes to that set by value *a*. This does not change the current attributes for printing etc. For example **10** Print Ink 2 Paper 5, "Hello" **20** !D48 will print Hello using red ink and cyan paper then change this to black ink and yellow paper.

!Px,y – (Plot)
Plot the pixel *x,y*. As the Spectrum *Plot* with colours but using the ZX! Basic 255 × 255 pixel grid.

!Q"text" – (64 column print)
This command is similar to the Spectrum Print and ZX! Basic *!T* command but prints at 64 columns per line. This command also supports the following sub commands (Note Semicolons):

!QChr$3, – will clear all 64 screen lines and reset the 'print at' position to 0,0. *!QChr$4,* – will scroll *Up* the screen by one character line. *!QChr$5,* – will scroll *Down* the screen by one character line. *!QChr$6,* – will print at the next *Tab* position. There are eight tabs in 64 column printing. *!QChr$8,* – move current print position left one position (and scroll the screen down if at 0,0). *!QChr$9,* – move current print position right one position (and scroll the screen up if at 23,63). *!QChr$10,* – move current print position up one line (and scroll the screen down if at line 0). *!QChr$11,* – move current print position down one line (and scroll the screen up if at line 23). *!QChr$12,* – delete character behind present print position and backspace to that position. If at position 0,0; then scroll the screen down and move current print position to 0,63. *!QChr$13,* – newline. *!QChr$16* to *21* as *Ink* to *Over* is normal *Print* but *Inverse* has no effect. *!QChr$22* or *!QAT line,column,* allows line and column values of 0 to 255 but values above 23,63, will wrap around the screen. *!QChr$23* or *!QTAB* allows values of 0 to 255 (but see *!QAT*). *!QChr$24* – to *!QChr$31* are new graphics characters not available from the keyboard.

64 column printing uses a new character generator which starts at address 51650 for *Chr Code 24*. This character generator is automatically selected when using !Q (and reset to its original value afterwards).

!R – (Lprint at 64 characters per line)
This command is similar to *Lprint* and prints to the ZX printer and similar printers at 64 characters per line. The following extra commands are also available:

!RChr$1,ls,le, – will copy the screen from line start to line end. Line start (ls) and line end (le) must be in the range 0 to 23. Note that semicolons must be used.

!RChr$3 clear the printer buffer without lprinting contents. *!RChr$6,* or *!R,* gives 8 tab settings. *!RChr$24* to *31* lprint new graphics characters.

Other codes 8 to 12 are similar to *!Q* codes but alter lprint positions.

!Ssa,sb,fa,fb – (sound effect)
This command can be used to produce thousands of different sound effects. Experiment with different values of *sa*, *sb*, *fa* and *fb* but keep values low until you are able to determine the sound produced. Certain values will make sound continue for hours with no way of stopping it. Use same value for *sa*, *fa* and for *sb*, *fb* for single tone.

sa 0 to 65535 start value of parameter one
fa 0 to 65535 finish value of parameter one
sb 0 to 65535 start value of parameter two
fb 0 to 65535 finish value of parameter two

Use the command in a For Next loop for best effect. For example **10** For A = 1 to 100 **20** !S50,A,A,40 **30** Next A.

!T"text"
This command is the same as the Spectrum *Print* command but allows printing on lines 22 and 22, has 4 *Tab* stops, backspace error corrected, no *Scroll?* prompt. Chr$9 corrected. Values of line and column from 0 to 255

CDB2	44	22	22	11	22	22	44	80	=	21
CDBA	00	55	AA	00	00	00	00	00	=	FF
CDC2	66	99	FF	DB	FF	99	66	30	=	07
CDCA	03	00	F0	00	00	02	00	00	=	00
CDD2	33	33	33	33	00	00	00	00	=	CC
CDDA	CC	CC	CC	CC	00	00	00	00	=	30
CDE2	FF	FF	FF	FF	00	00	00	00	=	FC
CDEA	00	00	00	00	33	33	33	33	=	CC
CDF2	33	33	33	33	33	33	33	33	=	98
CDFA	CC	CC	CC	CC	33	33	33	33	=	FC
CE02	FF	FF	FF	FF	33	33	33	33	=	C8
CE0A	00	00	00	00	CC	CC	CC	CC	=	30
CE12	33	33	33	33	CC	CC	CC	CC	=	FC
CE1A	CC	CC	CC	CC	CC	CC	CC	CC	=	60
CE22	FF	FF	FF	FF	CC	CC	CC	CC	=	2C
CE2A	00	00	00	00	FF	FF	FF	FF	=	FC
CE32	33	33	33	33	FF	FF	FF	FF	=	C8
CE3A	CC	CC	CC	CC	FF	FF	FF	FF	=	2C
CE42	FF	FF	FF	FF	FF	FF	FF	FF	=	F8
CE4A	00	00	00	00	00	00	00	00	=	00
CE52	03	32	FD	CD	01	6E	20	F4	=	59
CE5A	F0	CB	01	4E	00	00	34	00	=	8F
CE62	5C	4F	FE	06	CB	3A	6A	5C	=	6F
CE6A	EE	00	32	6A	5C	18	23	00	=	E9
CE72	2A	4F	5C	11	0F	00	19	11	=	1F
CE7A	A5	CE	73	23	72	CB	C9	1F	=	3B
CE82	11	0F	00	2A	4F	5C	19	11	=	1F
CE8A	29	0D	73	23	72	C9	2A	4F	=	6B
CE92	5C	11	00	00	19	11	A5	CE	=	9F
CE9A	73	23	72	CD	CB	1F	11	05	=	D7
CEA2	00	10	E0	FE	01	CA	7A	E1	=	0C
CEAA	FE	03	CA	AF	01	FE	04	CA	=	17
CEB2	20	01	FF	05	CA	DC	00	DB	=	4F
CEBA	CB	0A	CF	FE	10	D7	C1	CF	=	EE
CEC2	21	C9	CF	9F	16	00	19	5E	=	A4
CECA	19	E5	C3	DA	CF	73	11	2B	=	17
CED2	40	4A	5A	D4	8C	0A	07	7E	=	6B
CEDA	7B	7C	7B	7A	79	73	72	C9	=	15
CEE2	FD	CB	31	4E	20	0B	CB	CB	=	E4
CEEA	0E	DE	43	21	D0	5D	C3	92	=	7B
CEF2	CF	0E	43	CB	00	00	00	C3	=	5D
CEFA	A3	D8	0C	3E	44	B9	20	15	=	EF
CF02	FD	CB	01	1E	20	04	0E	43	=	94
CF0A	18	DD	04	0E	04	3E	19	00	=	4B
CF12	20	03	C9	20	B1	C3	A3	B8	=	24
CF1A	C3	06	00	FD	CB	01	4E	C8	=	F9
CF22	05	20	00	C5	CD	DC	B0	C1	=	2A
CF2A	04	C3	A3	D0	FD	CB	B1	4E	=	51
CF32	C0	B4	3E	19	B0	20	06	C5	=	BE
CF3A	CB	20	B1	C1	05	C3	A3	D0	=	C7
CF42	77	B6	02	E6	87	C3	A1	CF	=	71
CF4A	11	69	CF	32	0F	5C	18	0B	=	84
CF52	11	4A	CF	18	03	11	64	CF	=	09
CF5A	32	BE	5C	2A	51	5C	73	23	=	89
CF62	72	C9	11	A8	CE	FD	5D	CF	=	B8
CF6A	2A	0C	5C	37	7B	FE	18	DA	=	56
CF72	11	22	20	21	7A	E6	3F	4F	=	62
CF7A	3E	3F	91	C6	04	4F	F0	C0	=	EF
CF82	01	4E	20	0E	7C	05	18	30	=	17
CF8A	FC	20	02	C6	18	47	3E	10	=	41
CF92	5F	47	C3	A3	B8	7C	C0	DA	=	3B
CF9A	CF	81	D6	03	E6	3F	C8	57	=	6D
CFA2	C8	06	00	13	20	FA	C9	09	=	FB
CFAA	3A	91	5C	F5	F8	36	97	00	=	A6
CFB2	3F	00	07	3E	20	D7	3E	00	=	92
CFBA	97	F1	32	91	5C	B9	C7	C0	=	56
CFC2	F0	CF	FD	C9	01	4E	20	00	=	FE
CFCA	C0	43	2B	D1	22	29	D1	C9	=	11
CFD2	6D	43	EE	D1	22	F8	D1	C9	=	9D
CFDA	FE	CB	01	4C	20	00	CB	4B	=	77
CFE2	2B	D1	2A	29	01	C9	EB	40	=	21
CFEA	CE	01	2A	F0	D1	C9	FE	7D	=	01
CFF2	3B	12	B6	45	3B	03	CD	10	=	8F
CFFA	0C	10	DB	C6	15	C5	E0	4E	=	B9
D002	7E	5C	10	04	C5	01	C4	C9	=	4C
D00A	E8	26	00	6F	29	29	29	09	=	04
D012	C1	ED	79	D6	03	3E	43	20	=	9F
D01A	10	03	4F	F0	CB	01	4E	20	=	A3
D022	08	03	CB	C2	CE	D1	79	10	=	BC
D02A	D6	89	09	CC	D0	D0	D1	C5	=	96

are accepted but values above 23,21 will wrap around the screen.
Do not use local colours when printing on lines 22 and 23 as as OUT OF SCREEN error may occur

!U – (Up)
Up scroll the whole screen one character line with attributes

!Vo,n – (Swap attributes)
Swap screen attributes old (*o*) with new (*n*) values 0 to 255
For example **10** !V56 33 will swap all Ink 0; Paper 7 with Ink 0, Paper 4

!Wcs,ls,cw,lh,rs,d – (Window roll/scroll)
Pixel roll or scroll a window in any direction left, right up or down. The command will move the window by one pixel without attributes
cs – is the column start value (0 to 31) left hand column.
ls – is the pixel line start value (0 to 191) top line
cw – is the window width in character columns (1 to 32)
lh – is the window height in pixel lines (2 to 192)
rs – defines Roll or Scroll. 0 is Scroll, 1 is Roll
d – defines the direction of movement. 0 is left, 1 is right 2 is up 3 is down. Note that cs + cw must be less than 33
For example to Roll the whole screen up by five pixels, type **10** For A=1 TO 5 **20** !W0,0,32,192 1,2 **30** Next A.

!Xn – (Trace On)
This is a trace command that allows you to slow the execution of ZX! Basic by *n/50* secs delay between statements (A value of 0 will single statement step on a key press) The command executed is indicated at 21 0 with a display of *[Line Statement]* A useful command when de-bugging ZX! Basic

!Y – (Trace Off)
Turn off the Trace set by the *!X* command

!Zn
The last of the ! commands This command disables or enables the Break keys *!Z0* will enable the Break keys *!Z>0* will disable the Break keys
Do not use this command until you are happy with the running of your program and you have saved a copy of it as there is no way of returning to ZX! Basic unless you have an 'End Program' option which enables the Break keys

Extra Commands
Because ZX! Basic allows plotting over the whole screen but *Point* will only detects pixel on the 255 × 175 Spectrum Basic grid the following routine has been aded to point the ZX! Basic screen (255 × 255)
Poke 65382 x co-ordinate
Poke 65383 y co-ordinate
Let variable = USR 64984
This will return a value of 0 or 1 depending on the state of the pixel Values of *y* from 192 to 255 will return a value of 0
Spectrum Screen$ (line column) will only detect characters from Space to Copyright (32 to 127) ZX! Basic has a routine to detect UDG's as well as codes 32 to 127
Poke 65380 line
Poke 65381,column
Let string variable = Chr$ Usr 64382
Next week more code plus a demo program

```
D152  8E AF 84 23 12 18 10 FC = FC    D1EA  43 6E 81 C9 30 00 02 5D = 64    D0BA  00 19 C3 C4 CF 3E 10 90 = 55
D15A  C1 E1 23 18 D0 21 BF 5A = 82    D1F2  E0 60 00 0D = 20                D0C2  57 0F 8F 0F 04 E0 4F 7A = 33
D162  .1 FF 5A 01 EE 02 ED 80 = F2    D032  65 FD CB 01 4E 20 05 3A = 5B    D0CA  E6 10 F6 40 67 C9 FB CB = 2C
D16A  3A 00 5C 06 20 12 18 10 = 06    D03A  28 01 10 03 3A EE D1 06 = 16    D0D2  01 AE C9 11 A3 D0 05 78 = E0
D172  FC 21 1F 40 01 04 78 C9 = 62    D042  F0 AE 0E CB 47 20 03 41 = 03    D0EA  A7 C8 FD CB 01 1E C0 21 = 5F
D17A  FD C8 01 4E C0 1 85 01 = 40     D04A  0E F0 3A 71 5C C8 47 20 = 5F    D0F2  20 40 06 08 E5 0E 03 C5 = 29
D182  C3 5D CF 11 8E D1 32 0E = 9F    D052  02 08 FF 3E 08 A7 FD CB = C4    D0EA  E8 21 E0 FF 19 ED 01 20 = 10
D18A  8C C3 5B CF 11 A5 C6 CD = 9C    D05A  01 4E 28 05 F0 CD 30 CE = 42    D0F2  00 FB 20 78 A7 20 F1 21 = F3
D192  5D CF AF 3A 0E 5C 07 FE = 64    D062  37 08 1A A0 F5 7E A1 77 = 84    D0FA  20 07 19 C1 0D C5 20 EE = E1
D19A  18 20 79 90 D2 F5 78 CD = 03    D06A  F1 AE 77 00 30 12 24 13 = A4    D102  AF 06 20 12 13 10 FC C1 = C7
D1A2  C2 D0 F1 3C A7 17 17 17 = A8    D072  30 20 EC 28 FD C8 01 4E = 87    D10A  E1 24 10 08 21 20 50 11 = 97
D1AA  47 F3 C3 E2 0E F0 CB 01 = 06    D07A  20 03 C8 D0 80 E1 C1 0B = 85    D112  03 58 01 E0 02 E8 B0 3A = 12
D1B2  4E 20 21 21 08 40 11 01 = 02    D082  C8 41 C0 73 C9 08 3F 20 = 26    D11A  08 5C 06 20 12 13 10 FC = 40
D1BA  46 01 FF 17 36 00 ED 80 = 2A    D08A  05 4F 08 10 E2 05 D2 3A = DE    D122  21 80 40 01 43 01 C9 00 = 4F
D1C2  23 13 01 FF 72 3A 20 5C = 59    D092  91 3C F5 3F 70 FD 36 57 = CA    D12A  18 43 18 FE CE 01 4E C0 = 72
D1CA  77 ED B3 01 43 18 21 00 = 91    D09A  01 D7 F1 32 91 5C D0 D1 = 92    D132  21 DF 57 06 08 E5 0E 03 = 58
D1D2  76 23 AC D0 21 C3 56 22 = 14    D0A2  C7 FD CB 01 4E 20 05 21 = 2E   D13A  C5 E9 21 20 00 19 E9 01 = F6
D1DA  F0 D1 AF 47 77 23 10 FC = 5D    D0AA  60 5B 10 05 C3 CD BF 90 = 79    D142  20 00 C9 80 78 3C 20 F1 = 0F
D1E2  FD CB 30 8E 01 43 00 2D = B7    D0B2  C1 3E 43 91 CB 3F 9F 16 = 52    D14A  7C D6 07 67 C1 98 C5 20 = 73
```

Type righter

The final part of the QL input routine written by ***Jonathan Prestidge***

Shown below is (as Listing One) a sample program. Although it is not a fully fledged program it shows one easy way of implementing the routine in a practical application. Having said that, however, it isn't a bad start to an address data base if you're thinking of writing one.

The first part of the program, Line 130, sets up the error window (which would replace the need for Line 1010 in the main listing). This is where error messages will appear during the running of the program if the user makes a mistake. You can position the error window anywhere on the screen you want to suit your program and have the ink, paper, and character size as you like too, just by altering Line 130. The channel of the error window is set to three by the variable *Echan* but if you want to use Channel three, for a printer say, simply change the '3' for a spare channel number and the error window channel will automatically be changed throughout the routines.

The next thing that the program does is to lay out all the prompts on the screen. Each prompt is next to where the corresponding input will take place, as if a whole blank record were displayed on the screen. This lets the user know what's coming up next, and where he or she can expect the cursor to appear as they input one field after another. Then, since the user can see what input is next, he or she can take full advantage of the QL's type-ahead buffer.

In the 'Set-up variables' section (Lines 170 to 230) the necessary format information for the input command on Line 260, is set up in four arrays. This allows the *Input At* command to be referenced easily by a variable. In the sample program, the command is referenced by the loop *'Fields'*. If you are writing a program from scratch this is probably the easiest way to use the routine – it makes formats easy to de-bug too since they're all together at the top of the program and by adding formats, qualifiers, etc, to the arrays and upping the *'Num Fields%'* variable, you can add fields without ever having to worry about Lines 290 to 330 of the program. Of course, there will be exceptions to this where you want special processing for specific fields or some validation that the routine can't handle, even then there's quite a neat way of doing that, with a *'Select On Fields'* statement (see the QL User Guide under KEYWORDS page 53).

I've utilised the *'F1'* and *Esc* key (with Lines 280 to 300), *F1* being a 'back one field' key and the Escape key as (yes you guessed it!) Escape. The back one field effect is obtained by first checking *Stat$* to see if it equals *'F1'*, then if it does, one is subtracted from the reference variable (ie, *'Fields'*) and the processing is sent back to Line 260. The previously input field is then redisplayed and can be altered, deleted, etc, and re-entered. The actual information from the previous field is recovered for this alteration from *Fie$ (Fields)* which is stored away after every input by Line 270. The effect of the Escape key is achieved by Line 300, which simply stops the program when *'Esc'* is detected in *Stat$*.

It's worth using this program as a guinea pig, trying out anything you're not sure about – always the best way of getting used to a routine. I hope you'll find it useful and easy to program with, and by the way, don't forget to keep a back-up copy of the routine, because typing it in once was enough for me too!

If typing it in is all too much for you, I can supply a copy of both programs in microdrive for the princely sum of £4.50. Write to me at 17 Highfield Drive, Sutton Coldfield, West Midlands.

Last week Part Two of the SuperBasic listing was incomplete – our apologies. This week, Listing Two is the whole of the second part of the routine... honest.

```
100 REMark        An example program for program for use with the
                               INPUT AT procedure
    -----------------------------------------------------------------
110 MERGE MDV1_INPUT_AT : REMark Or whatever file name you have saved the
                               procedure as
130 REMark ======== Initialisation for INPUT_AT procedure ============
135 LET ECHAN = 3 :
    OPEN #ECHAN, SCR : WINDOW #ECHAN, 400, 23, 56, 256-25 :
    CSIZE #ECHAN, 1,0 : BORDER #ECHAN, 1,7 : PAPER #ECHAN, 2 :
    INK #ECHAN, 7: REMark Error window ( position & size etc optional )
140 REMark ================ Initialise screen ========================
150 MODE 4
160 REFRESH_SCREEN
170 REMark ===================== set up vars ========================
180 LET NUM_FIELDS% = 5
190 DIM ANSWERS$( NUM_FIELDS%, 30 )
200 DIM FORMAT$( NUM_FIELDS%, 30 ) :
    LET FORMAT$( 1 ) = "Aaaaaaaaaaa" :
        FORMAT$( 2 ) = "Aaaaaaaaaaa" :
        FORMAT$( 3 ) = "CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC" :
        FORMAT$( 4 ) = "990" : FORMAT$( 5 ) = "XXXXXXXXXXX"
210 DIM FIE$( NUM_FIELDS%, 30 )
220 DIM CHECK$( NUM_FIELDS%, 20 ) :
    CHECK$( 4 ) = "0 TO 140": REMark Age check. (can t be older than 140!F
230 DIM QUALIFY$( NUM_FIELDS%, 40 ) :
    LET QUALIFY$( 1 ) = "NO SPACES, MIN LENGTH = 1."
240 REMark =============== Main Procedure ===========================
250 FOR FIELDS = 1 TO NUM_FIELDS%
260 INPUT_AT FIELDS + 2, 23, FORMAT$( FIELDS ), FIE$( FIELDS ),
        CHECK$( FIELDS ), QUALIFY$( FIELDS )
270 LET FIE$( FIELDS ) = STR_INP$
280 IF STAT$ = "F1" AND  FIELDS > 1 THEN LET FIELDS = FIELDS - 1 :
    GO TO 260
290 IF STAT$ = "F1" THEN GO TO 260
300 IF STAT$ = "ESC" THEN PRINT #0, "PROGRAM ABORTED BY (ESC)" : STOP
310 IF STAT$ <>"RETURN" THEN DISP_ERROR STAT$ & " Key not Usable." :
        GO TO 260
320 LET ANSWERS$( FIELDS ) = STR_INP$
330 NEXT FIELDS
340 PRINT #0, "e n d   o f   d a t a" : STOP
350 REMark
360 REMark ################## REFRESH SCREEN ?????????????????????????
370 REMark
380 REMark Print all prompts and other none changing parts of the screen
390 REMark
400 DEFine PROCedure REFRESH_SCREEN
410   PAPER 2 : CSIZE 1,1 : BORDER 1, 7 : CLS
420   AT 1, 20 : INK 0 : PAPER 7 : PRINT ' Address Book '
430   INK 7 : PAPER 2
440   AT 3, 10 : PRINT "Surname"
450   AT 4, 10 : PRINT "First Name"
460   AT 5, 10 : PRINT "Address"
470   AT 6, 10 : PRINT "Age"
480   AT 7, 10 : PRINT "Telephone"
490 END DEFine
```

```
5710 IF CT$ = "K" THEN IF ( I< 97 OR I )122 ) AND ( I< 65 OR I )90 )
       AND I <> 32 THEN DISP ERROR E$ & "Letters or Spaces Only." :
       GO TO 5400
5720 IF CT$ INSTR ALLOWED$ = 0 AND CP = NUM THEN GO TO 5930
5730 AT LIN, COL + CP - 1; : PRINT I$ : LET INP$( CP ) = CHR$( I )        :
     BEEP 1,5 : IF CP < NUM THEN LET CP = CP + 1 : REMark Display Input
5740 IF I <> 0 THEN GO TO 5400 : REMark No need for cursor yet
5750 REMark ========================= Cursor Keys ==========================
5760 IF I = 192 THEN IF CP > 1 THEN LET CP = CP - 1 :
       IF TYPE$( CP ) INSTR ALLOWED$ = 0 THEN GO TO 5920 :
       REMark        cursor left key
5770 IF I = 200 AND CP > 1 THEN
       IF TYPE$( CP - 1 TO CP ) = "ZZ" AND INP$( CP - 1 ) <> " "
       AND INP$( CP ) = " " THEN
       DISP ERROR E$ & "Illegal Action" : GO TO 5830
5780 IF I = 200 AND CP < NUM THEN LET CP = CP + 1 : IF TYPE$( CP )=","
       THEN GO TO 5930 : REMark        cursor right key
5790 IF I = 9 THEN LET CP = CP + 5 : REMark Tabulation ( tab of 5 )
5800 IF CP > NUM THEN LET CP = NUM : DISP ERROR " End of Field."
5810 IF CT$ INSTR ALLOWED$ = 0 AND CP = NUM THEN GO TO 5950
5820 REMark ========================= Cursor ===============================
5830 IF "GHOST-CURSOR" INSTR DUAL$ THEN LET CUR$ = INP$( CP )
5840 AT LIN, COL + CP - 1; : OVER -1 : PRINT BACK$ : OVER 0
5850 AT LIN, COL + CP - 1; : OVER -1 : PRINT CUR$ : OVER 0
5860 IF "COUNT" INSTR DUAL$ THEN AT LIN, COL + NUM + 1; :
       PRINT "("; CP - PLACE + 1; ")  "
5870 FOR A = 1 TO 5 : NEXT A : REMark Delay loop: speed of cursor flash
5880 AT LIN, COL + CP - 1; : OVER -1 : PRINT BACK$ : OVER 0
5890 AT LIN, COL + CP - 1;   OVER -1 : PRINT CUR$  : OVER 0
5900 IF CHR$( I ) INSTR OUT$ THEN GO TO 6210
5910 GO TO 5400
5920 REMark
                       M A I N   L O O P   E N D

================== Find Next Vacant Space For Entry if Any ================
5930 IF CT$ INSTR ALLOWED$ = 0 THEN LET CP = CP   1 : CT$ = TYPE$( CP ) :
       GO TO 5930
5940 GO TO 5760
5950 REMark ======== Find decimal point if any ============================
5960 IF DOT = 0 THEN DISP_ERROR "Sorry, No decimals in this Number." :
       GO TO 5400
5970 LET CP = DOT : DOT = DOT - 1
5980 FOR A = 1 TO DOT
5990   IF TYPE$( A ) INSTR "Z99" AND INP$( A ) <> " " THEN
         LET START = A : GO TO 6010
6000 NEXT A : PRINT "FORMAT ERROR, DECIMAL PLACE IN NON-NUMERIC FIELD" :
       STOP
6010 FOR B = DOT TO START STEP -1
6020   IF INP$( B ) = " " THEN LET THE_END = B - 1
6030 NEXT B
6040 IF START > THE_END THEN GO TO 6090
6050 LET TEMP$ = INP$( START TO THE_END )
6060     INP$( START TO DOT ) = FILL$( " ", DOT - START + 1 )
6070     INP$( DOT-LEN(TEMP$)+1 TO DOT ) = TEMP$
6080 AT LIN, COL + START - 1; : PRINT INP$( START TO DOT )
6090 LET DOT = DOT + 1
6100 GO TO 5400
6110 REMark ==== Process Validity of Leading Spaces Before a Value =======
6120 LET ER$ = "OK" : REMark Error flag
6130 IF CP = 1 THEN GO TO 6200
6140 IF I$ = " " AND INP$( CP - 1 )<> " " AND TYPE$( CP - 1 ) = "I" THEN
       LET ER$ = "ERROR" : GO TO 6200
6150 IF INP$( CP - 1 ) <> " " THEN GO TO 6200
6160 FOR A = CP - 1 TO 1 STEP -1
6170   IF TYPE$( A ) <> "I" THEN GO TO 6200
6180   IF INP$( A )  <> " " THEN LET ER$ = "ERROR"
6190 NEXT A
6200 GO TO 5410
6210 REMark ============== Check and evaluate input before exiting ========
6220 LET STAT$ = "RETURN"
6230 IF I =  27 THEN STAT$ = "ESC"
6240 IF I = 232 THEN STAT$ = "F1"
6250 IF I = 236 THEN STAT$ = "F2"
6260 IF I = 240 THEN STAT$ = "F3"
6270 IF I = 244 THEN STAT$ = "F4"
6280 IF I = 248 THEN STAT$ = "F5"
6290 IF I = 208 THEN STAT$ = "UP"
6300 IF I = 216 THEN STAT$ = "DOWN"
6310 LET MARK2 = 1 : MARK = 0
6320 FOR A = MARK2 TO NUM
6330   IF TYPE$( A ) = "Z" OR TYPE$( A ) = "9" THEN MARK = A : GO TO 6360
6340 NEXT A
6350 GO TO 6430
6360 LET MARK3 = 0
6370 FOR A = MARK TO NUM
6380   IF INP$( A ) <> " " THEN LET MARK3 = 1
6390   IF MARK3 = 1 AND INP$( A ) = " " THEN IF TYPE$( A ) = "Z" OR
         TYPE$( A ) = "9" THEN DISP ERROR E$ &
         "Disjointed Numbers not Allowed" : GO TO 5400
6400   IF TYPE$( A ) <> "Z" AND TYPE$( A )<>"9" THEN LET MARK2 = A :
         IF MARK2 < NUM THEN GO TO 6320
6410 NEXT A
6420 REMark ============== Output strings ===================================
6430 LET DE = "DEFAULT = " INSTR DUAL$ :
     IF INP$ = FILL$( " ", NUM ) AND DE THEN LET INP$ =
       DUAL$( DE + 10 TO DE + NUM + 10 )
6440 LET FUL INP$ = TYPE$ : LET STR INP$ = INP$
6450 FOR A = 1 TO NUM
6460   IF TYPE$( A ) INSTR ALLOWED$ THEN LET FUL INP$( A ) = INP$( A )
6470   IF TYPE$( A ) = " " THEN LET STR_INP$( A ) = ","
6480   AT LIN, COL + A - 1 :
       IF TYPE$( A ) = "9" AND FUL INP$( A ) = "0" THEN PRINT ZERO$  :
         ELSE PRINT FUL_INP$( A )
6500 NEXT A
6510 FOR J = 1 TO NUM
6520   IF STR_INP$( J ) <> " " THEN GO TO 6540
6530 NEXT J
6540 FOR I = NUM TO 1 STEP -1
6550   IF STR INP$( I ) <> " " THEN GO TO 6580
6560 NEXT I
6570 IF I <= J THEN LET STR INP$ = "" : GO TO 6590
6580 LET STR_INP$ = STR INP$( J TO I ) : REMark no spaces bef  or aft
6585 IF NO_SPACES AND " " INSTR STR_INP$ THEN
       DISP_ERROR E$ & "No spaces allowed in this field" : GO TO 5410
6590 LET KEY INP$ = INP$ : REMark With leading & trailing spaces
6600 REMark ================= check ranges =================================
6610 IF LEN( STR INP$ ) < MIN NUM THEN DISP ERROR
       "Not Enough Characters. (min. = " & MIN NUM & ")" : GO TO 5400
6614 IF LEN( RANGE$ ) = 0 THEN RETurn
6620 LET TP = " TO " INSTR RANGE$
6630 IF TP THEN IF STR INP$ < RANGE$( 1 TO TP -1 ) OR STR INP$ >
       RANGE$( TP + 4 TO ) THEN DISP ERROR E$ &
       "Out of Range : " & RANGE$ : GO TO 5400
6640 IF TP THEN RETurn : REMark Check already done
6650 LET ANS$ = "" : ER2$ = "ERROR"
6660 FOR A = 1 TO LEN( RANGE$ )
6670   IF RANGE$( A ) = "," THEN IF ANS$ = STR INP$ THEN LET ER2$ = "OK"
6680   IF RANGE$( A ) = "," THEN LET ANS$ = "" : GO TO 6700
6690   LET ANS$ = ANS$ & RANGE$( A )
6700 NEXT A
6710 IF ANS$ = STR INP$ THEN LET ER2$ = "OK"
6720 IF ER2$ = "ERROR" THEN DISP_ERROR E$ & "Out of Range : " & RANGE$ :
       GO TO 5400
6730 END DEFine INPUT_AT
6740 REMark
                              __________
                             * end proc. *
                             *__________*
6750 REMark
                   ______________________________
                  * print error message. (PROC. DISP_ERROR)*
                  *______________________________*
6760 DEFine PROCedure DISP_ERROR ( PAR$ )
6770 CLS #ECHAN : IF BEEP THEN BEEP 500 , 20
6780 AT #ECHAN, 0,0; : PRINT #ECHAN, PAR$ : PAUSE 150 : CLS #ECHAN
6790 END DEFine DISP ERROR
6800 REMark
                              __________
                             * end proc. *
                             *__________*
```

Tap dancing

Get your dots and dashes sorted out with this offering from ***Bob Baxter***

Morse Code has proved essential for world communications. From the early Telegraph to DX working the Samuel Morse code provides us with a format which is quite easy to learn and an international standard for communicating over long or short distances. Where once communications or signals were restricted to a 'line of sight' only, Morse started us on a road where civilisation began to talk over short and then long distances. The fate of nations and the history of the world has been changed due to Samuel Morse and the simplicity and reliability of the *Dadah* language.

This program has been developed primarily as a learning tool for those wishing to sit their Post Office Amateur Radio Licence. The British morse test is 12 groups/min whilst the Americans subject their novices to only 5 g/m. With this in mind, the program has a variable speed menu which should suit the very beginner and the more experienced.

Option seven is not used in this program. It is included to facilitate the further expansion of a routine for hardware interface to a transmitter.

Although the program has been timed using a stopwatch for the 12 and 16 groups, the *X* variable may be adjusted to suit if the program or routines are modified in any way. Likewise the Tone and Volume controls may be adjusted accordingly. The Duration of the sound may also be adjusted, although care should be taken that the duration does not exceed that of the fastest group's time periods of the pulses. Experimenting with Envelope shaping may prove interesting here.

Program Notes

Line No	
10-100	Initial Setup
120-250	Titles
260-400	Main Menu
420-550	Adjustment Menu
570-660	Volume Adjustment
680-750	Speed Adjustment
770-890	Tone Adjustment
910-950	Tone Sounder
980-1020	Time/Delay Counter
1040-1250	Selection & Printout
1270-1300	Random Letters
1330-1350	Random Numbers
1370-1400	Random Procedures
1420-1450	Mixed Groups
1470-1600	Keyboard Output
1620-1630	Transmission Interface (not used)
1650-1720	Instructions
1740-2110	Morse Table
2130-2160	Data Bank

Variables

Char	Ascii Character
Grp	Groups 1-36
Tn	Tone Level
Dur	Sound Duration
Vol	Volume Level
Sp	Output Speed
Cv	Character Value
Ds	Data Store Pointer
Gc	Garbage Collection
X	Time Variable
Dc	Data Character
P	Delay Period
D	Delay Counter

If you don't want to wear your fingers out typing, I can supply tape copies for £2.75, including postage. Write to me at PO Box 17, Burnham-on-Sea, Somerset.

```
10 REM ◆ ANCMORSE ▶
20 REM
30 REM ◆ B BAXTER ▶
40 REM
50 INK 1,22:SYMBOL AFTER 45:SYMBOL 45,[illegible]
60 [illegible]
70 [illegible]
80 [illegible]
90 [illegible]
100 VOL=15:SP=[illegible]:DUR=75
110 REM
120 REM ▶ TITLE MODE 1 ▶
130 REM
140 MODE 0
150 LOCATE 6,3:PRINT"ANCMORSE"
160 LOCATE [illegible]:PRINT"[illegible]"
170 LOCATE [illegible]:PRINT"[illegible]"
180 [illegible]
190 WHILE OPT<8
200 [illegible]
210 [illegible]
220 WEND
230 [illegible]
240 REM
250 REM ▶ MAIN MENU 2. ▶
260 REM
270 CLS:PRINT:PRINT"Main Options "
280 PRINT:PRINT:PRINT" 1 Adjust Speed, Tone & Volume."
290 PRINT:PRINT" 2 Random Letters "
300 PRINT:PRINT" 3 Random Numbers "
310 PRINT:PRINT" 4 Random Punctuation/Proc "
320 PRINT:PRINT" 5 Mixed Groups "
330 PRINT:PRINT" 6 Keyboard Output "
340 PRINT:PRINT" 7 Transmission interface "
350 PRINT:PRINT" 8 Instructions and Codes."
360 PRINT:PRINT" 9 Exit Program "
370 LOCATE [illegible]:PRINT"Select option "
380 [illegible] THEN 380
390 IF ASC(A$)<49 OR ASC(A$)>57 THEN 270
400 [illegible]
410 REM
420 REM ▶ ADJUSTMENT ROUTINE 3 ▶
430 REM
440 WHILE OPT<4
450 CLS:PRINT"Volume, Speed & Tone Menu-":PRINT
460 PRINT:PRINT"1 Alter Volume "
470 PRINT:PRINT"2. Alter Speed "
480 PRINT:PRINT"3 Alter Tone "
490 PRINT:PRINT"4 Main Menu "
500 LOCATE [illegible]:PRINT"Select Option..."
510 [illegible] THEN 510
520 IF ASC(A$)<49 OR ASC(A$)>52 THEN 450
530 [illegible]
540 WEND
550 RETURN
560 REM
570 REM ▶ VOLUME CONTROL 4 ▶
580 REM
590 CLS:PRINT:PRINT"Current volume level: "VOL
600 [illegible]
610 INPUT [illegible]
620 [illegible]
630 [illegible]
640 [illegible] THEN 640
650 [illegible] THEN RETURN
660 [illegible] THEN 590 ELSE 640
670 REM
680 REM ▶ SPEED CONTROL 5 ▶
690 REM
700 CLS:PRINT:PRINT"The speed is "SP" words per min.":P
RINT
710 PRINT"Enter a new speed between 2 [illegible]
720 PRINT"per minute ":PRINT
730 INPUT SP:SP=INT(SP)
740 IF SP<2 OR SP>36 THEN 720
750 RETURN
760 REM
770 REM ▶ TONE CONTROL 6. ▶
780 REM
790 CLS:PRINT:PRINT"The tone is "TN
800 PRINT:PRINT"Enter a value between [illegible]
r the tone ":PRINT
810 PRINT"A higher number = lower tone"
820 INPUT [illegible]
830 IF [illegible] THEN 790
840 [illegible]
850 PRINT:PRINT"Okay? (Y/N) ?"
860 [illegible] THEN 860
870 IF A$="Y" THEN RETURN
880 IF A$="N" THEN 790 ELSE 860
890 RETURN
900 REM
910 REM ▶ TONE SOUNDER 7 ▶
920 REM
930 [illegible]
940 [illegible]
950 [illegible]
960 [illegible]
970 REM
980 REM ▶ TIME DELAY ROUTINE 8. ▶
990 REM
1000 [illegible]
1010 [illegible]
1020 RETURN
1030 REM
1040 REM ▶ SELECTION & PRINTOUT 9 ▶
1050 REM
1060 GOSUB [illegible]
1070 [illegible]
1080 [illegible]
1090 [illegible]
1100 [illegible]
1110 [illegible]:PRINT"Press any key for Menu.
"
1120 [illegible]
1130 RETURN
1140 [illegible]
1150 [illegible]
1160 [illegible]
1170 [illegible]
1180 [illegible]
1190 [illegible]
1200 [illegible]
1210 [illegible]
1220 [illegible]
1230 [illegible]:PRINT"Press any key for Menu.
"
1240 [illegible] THEN 1240
1250 RETURN
1260 REM
1270 REM ▶ RANDOM LETTERS 10 ▶
1280 REM
1290 CLS:PRINT:PRINT"Random Letters ...5 groups of 5 "
PRINT
1300 [illegible]:RETURN
1310 REM
1320 REM ▶ RANDOM NUMBERS 11 ▶
1330 REM
1340 CLS:PRINT:PRINT"Random Numbers ...5 groups of 5 "
:PRINT
1350 [illegible]:RETURN
1360 REM
1370 REM ▶ RANDOM PUNCTUATION & PROC 12. ▶
```

```
1390 GO?
1400 CLS:PRINT:PRINT"Random Punctuation/Procedure ..":
PRINT
[illegible]
1460 REM
1470 REM * KEYBOARD OUTPUT [illegible] *
1480 REM
1490 CLS:PRINT:PRINT"Type " to return to Menu.":PRINT
[illegible]
1600 PRINT:PRINT"This Morse routine has been designed t
o output a standard 30 groups of 5 chars. The options a
[illegible]
1690 PRINT:PRINT"Facilities include variable volume [illegible]
[illegible] together with variable speed "
1700 PRINT:PRINT"Further options include keyboard output
[illegible]
1710 LOCATE ?,25:PRINT"Press any key to continue "
1720 a$=INKEY$:IF a$="" THEN 1720
1730 REM
1740 REM * [illegible] *
1750 REM
1760 CLS:PRINT"A [illegible]
[illegible]
1880 LOCATE ?,25:PRINT"Press any key to continue.."
1890 a$=INKEY$:IF a$="" THEN 1890
1900 CLS:PRINT:PRINT"Punctuation & Procedures ":PRINT:
PRINT
1910 PRINT"( ) Full Stop
1920 PRINT"(,) Comma
1930 PRINT"(:) Colon
1940 PRINT"(-) Dash
1950 PRINT"(?) Query
1960 PRINT"( ) Fraction Bar
1970 PRINT"( ) Apostrophe
1980 PRINT"( ) Left Bracket
1990 PRINT"( ) R/Bracket
2000 PRINT"(=) Break Sign
2010 PRINT"( ) Quotes
2020 PRINT"( ) Starting Sig
2030 PRINT"( ) Ending Sig
2040 PRINT"( ) Wait
2050 PRINT"( ) Error
2060 PRINT"( ) End of Work
2070 PRINT"( ) Invite Trans
2080 PRINT:PRINT"* Note the use of computer symbols "
2090 LOCATE ?,25:PRINT"Press any key for Menu."
2100 a$=INKEY$:IF a$="" THEN 2100
2110 RETURN
2120 REM
2130 REM * CHARACTER [illegible] *
2140 REM
2150 DATA [illegible]
2160 DATA [illegible]
2170 DATA [illegible]
2180 DATA [illegible]
2190 DATA [illegible]
```





Mouse + cheese

Here's an intriguing little story for those of you struggling to finish *Finders Keepers*. John Watson of Rochdale writes "My young son has been playing the game for weeks but try as he may he was unable to finish with more than 88%. In an effort to help I used this small program that reveals the alphanumeric characters hidden in the code

```
10 CLEAR 24200
20 LOAD ""CODE 24201
30 FOR F=24201 TO 65367
40 IF PEEK F 32 THEN GO TO 70
50 IF PEEK F 127 THEN GO TO 70
60 PRINT CHR$ PEEK F,
70 NEXT F
80 STOP
```

"To our surprise we came across a mouse and later on a very fat mouse. We already had the cheese and as you know in this game certain objects combine to form other objects 1 mouse + 1 cheese = 1 very fat mouse, or so logic would suggest. But after looking very hard we never found the fabled mouse! A letter to Mastertronic was required. They replied promptly but sadness befell the assembled throng. No mouse. According to Mastertronic 88% is the maximum score and not even a skinny mouse exists.

"However, it states in the instructions that the Knight has two options.

1) Collect as much as possible and then escape, and
2) Return to the King and join the Knights of the Polygon Table (with hints of the hand of a fair princess)

"But as it stands only the options to escape with the loot exists. Not only no mouse, but no fame and even worse no princess! It looks like a case of the 'Faulty End' or even the 'Forgotten End'.

"Anyway here are some hints

1) Philosophers stone + iron bar = gold bar,
2) Cotty Sark + empty bottle = ship in bottle,
3) Spark of life + pile of mud = mud monster,
4) Broken sword + blacksmith = excalibur, and
5) Drop charcoal, sulphur and saltpetre at the feet of the puss without boots – it forms gunpowder which can be used to remove the cat if you light it with the magic flame."

Well, thanks for the letter John, even if it is bad news to players looking for that elusive final 12%. Nevertheless it is one of the best cheap games available, in fact exceptional value for money, and the economics of the thing must make it impossible for them to get involved in prolonged efforts to correct a major bug. Such problems can take an age to solve, for instance it's taken nearly a year for *Swords and Sorcery* from PSS to be sorted out after the first adverts appeared.

Now then lets get on with some more of your hints and tips left over from the arcade special. Graham Robinson of Durham has sent this. "After reading your column for many months I decided to try and find a game which nobody had reported tampering with (an awesome task) but finally I found it, Quicksilva's *Astro Blaster*. I found a neat way of returning to Basic was built in. Load the tape as usual – play game to get a high score. After the writing inviting you to enter your name has finished press 'T' then type either *Poke* 27422,0 for infinite lives or *Poke* 28396, × for × lives. Then *Goto* 40 to start program."

Graeme Foster has a tip for the ancient *Orbiter* by Silversoft – after game-over appears press *Caps Shift* then *Break*. Then type *Edit* and change a=26712 to a=26716 to give you 256 lives and 256 smart bombs.

Here are some tips that arrived without a name for the Commodore. Unfortunately no details are given on how to get them in. I have to repeat that I don't possibly have the time, or the software come to that, to test out every one of these things and fill in the gaps. Despite that, I know that a lot of you have no trouble getting these Pokes in and they're therefore worth printing. Can I ask that anyone who has details on how to get into these games to send them in so that using the pokes will be easier for beginners. Anyway, you can always use the dodge of resetting the computer by touching Pins 6 and 2 of the user port, or buy a breaker switch which is a small plug-in utility that does the same thing.

Here are the pokes: *Manic Miner Poke* 16419, screen and *Poke* 16424, lives. *Attack of the Mutant Camels Poke* 11839,255 and *Sys* 4096 to start, *Motor Mania*, *Poke* 8646,255 and *Sys* 8000, *Guardian Poke* 21050,169 *Poke* 21051,0 *Poke 21052,234 Poke* 21053,234 *Poke* 21054,234 and *Sys* 24765, *Anaconda*, *Poke* 22743,57 *Poke* 22744 57 and *Sys* 16384, *Gryphon*: *Poke* 7313,169 *Poke* 7314,0 *Poke* 7314,234 and *Sys* 5200 then press *Run/Stop* – also try *Sys* 5000.

Andrew Donaldson of Walton-on-Thames has written with a plea for help, prompted by the abilities of the hackers who write in to the column – "Can anyone help me to get into Artic Computing's *Voice Chess* so that I can get it to print out moves on a printer other than the ZX. With my Manneson Tally and ZXL print interface I can get screen dumps of the board and piece positions but the program crashes when I try to print the table of moves." I know this isn't the usual area we deal with, but if any hacker fancies a challenge to their abilities then I can put you in contact with Andrew.

I've also had several pleas for help with Micropower's *Castle Quest* on the BBC – such as this from Waseem Asghar of Leyton: "What do you do with the wand after you've killed off the witch?"

I know that some of our readers finished this program ages ago, and I would greatly appreciate it if any of you could let me have a complete run down of the solution to answer these specific questions.

Finally this week, Robin Williams of Blackheath wonders if he is the first to finish Superior Software's *Repton* (a sort of enhanced *Boulderdash*) on June 8. He recommends it as an excellent game for any Beeb owner and has given us the screen passwords: *A* Screen One, *B* Chameleon, *C* Terrapin, *D* Sidewinder, *E* Gecko, *F* Python, *G* Salamander, *H* Iguana, *I* Cuttlefish, *J* Octopus, *K* Giant Clam, *L* The Kraken. Thanks Robin.

Tony Kendle

We are searching for the top UK computer games player – the best there is!

The very best of Britain's game players will get to fight it out on a number of top secret new games – scheduled for release in the autumn.

Here's how it works

Study the table below and look at the column for the machine you have – these are the games you'll need to master. Send your high scores in on the form below, making sure that your scores are authenticated by a responsible individual signing the form. Any score achieved using technical short-cuts – such as infinite lives Pokes – will not be accepted.

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat. Then, in September the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play the 'top secret' games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beam Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

Micro

Game 1 score

Game 2 score

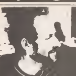
Game 3 score

Name

Address

Your signature

Witness's signature



MUD adventuring

Continuing our look at overseas adventurers and their problems, let's hear this week from James Bonello of Malta. He's written to me several times over the months, and I feel that I should mention him before he gets too angry!

He's the owner of a Commodore 64, and is particularly interested in corresponding with others who are working their way, like him, through *Eureka!*. Write to 161 Old College Road, Sliema, Malta.

On now to a couple of Infocom adventures, and some help for players stuck in *Planetfall* and *Starcross*. D R Coomber, from Staffordshire is working through the former on his Einstein. He asks, "How do I kill the Microbe at Station 326 and get back to normal? How do I get into and out of the Radiation Lock? Where is the Radiation Suit?" To deal with the Microbe, you'll need the Laser – turn it up to the maximum setting *(before* you meet the Microbe) and then fire repeatedly. Now, here's a surprise, which may well throw many players off the scent!

This is *not* a zapping exercise – the laser has no effect on the Microbe, but it *does* love warm things, and now your laser will be red-hot. Just throw it into the cavern and the Microbe will follow. As for the Radiation Lock, you can't get into it (it's there for a bit of colour), and so you can also forget about the Radiation Suit. Mr Coomber is happy to help anyone currently working through the adventure, and his address is 14 Francis Green Lane, Penkridge, Staffs ST19 5HF.

Starcross is also giving trouble, to Mr B Walker for one, whose cry from the heart is "Help! I'm stuck and would be grateful for any help that you can offer." He's at 38 Roman Way, Edgbaston, Birmingham B15 2SJ.

Geoff Phillips is stuck in the game too. "In particular, extracting the red rod from the rat-ant nest, trying to get down from the control bubble and understanding the 3-slot machine."

To get the rod, throw something at the nest – anything will do except another rod! To get down from the control bubble, jump off and then fire the gun at the drive bubble. There are, as you know, several slot machines around – try inserting the ceramic disc to get a result.

And while I'm talking of Infocom adventures, let me report news of a most profound and shocking nature which has momentarily shaken my previously rock like faith in the company – on idly messing around with *Deadline* the other day, I actually found two *spelling mistakes* in close succession! No, I couldn't believe it either, but there you have it.

Geoff also asked me to pass along a few hints. "In Beyond's *Shadowfire*, you'll find lots of interesting things to be found around the ship. For example, the captain's cabin has a key-card that gets you in through the door, and there is also a strange device in the science area. It would have been nice if the game awarded a bonus score for collecting souvenirs (there are hundreds of weapons all over the place). To stop Zoff escaping get Manto to drop the transporter over the doorway, then retire back to the ship.

'Once there, Manto can monitor who is passing the transporter and beam up a surprised-looking criminal. In fact, using Manto to beam people up and down seems to be the main tactic for surviving the attack outside the room where the Ambassador is kept.

"A problem with Infocom games is that, when you come to the end you often have to switch off and reload. An improvement, on the C64 anyway, is to type *Poke* 792, 0 *Poke* 793,12 *before* loading the game. You are then able to restart by typing Restore."

Most of you, I imagine, will have heard or read about *MUD*. It's short for *Multi-User Dungeon*, and until now was only available to Essex University students and lucky Commodore owners with modems (used to tap in to the main computer, in the same way as user tap into Prestel or Micronet).

Richard Bartle and Roy Trubshaw, a pair of former Essex University students, set up the first Dungeon, which is still running, back in 1980 on the University's main-frame. I've had only a very brief exposure to *MUD*, but it's absolutely fascinating. Imagine a *Zork*-like scenario, with lots of gold, treasures, combat and most important, lots of difficult, complex puzzling and detective work – and then share the adventure with lots of other players, all trying to cut do each other (and you!) in scoring points. Apart from collecting treasure to gain points, they are also won by killing off other players (and lost, of course, by being killed), which is why proceedings can get heated! Points are important, as your rating goes up according to how well you have played, the ultimate accolade being promotion to Wizard. Attaining this much contended position renders you pretty well invincible, but also allows you to actually change the parameters of the game itself. This means that the more humble player can be getting along quite well in working through a particular problem, and then find that he has been led up a long garden path by a sniggering Wizard. This, rather than putting anyone off, is all part of the fun, and indeed an incentive to keep slogging away at amassing points for your own apotheosis.

I could go into far more detail, but why not try it for yourself? Soon, *MUD* will become available to *any* computer-owner with a modem. The Compunet version is apparently opening up to non C64 owners this month (see News July 25 issue) and an enhanced version from British Telecom, which will be available for a trial period in September, is scheduled to come on-stream in November.

In order to play the BT version, the user must first purchase a *MUD*-pack for £30 (and early purchasers will be able to play free for that trial month), after which an hourly charge is made while on-line to the *MUD* computer.

I find all these charges (BT and Compunet have different scales, with Compunet requiring a monthly subscription, the level of which decides your hourly charge) rather tough at the moment.

Knowing how addictive *MUD* can become, I shudder to think of my phone bill – imagine two or three hours of play a night for three or four nights a week! Do they have soup kitchens for adventurers? I'm sure, though, that if the project becomes a success, that these charges will come down.

I'd recommend *MUD* unreservedly to any millionaire adventurer, and if the rest of us can keep our modem adventuring to a reasonable level (difficult though it will obviously be!), then I think multi-player adventures like this could become very important in the future.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

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AMSTRAD CPC464 colour monitor only 6 months old inc 7 computer books user mags and s/w worth £80 Cost £430 will accept £350 ono Tel Upminster 27322 aks for Ben (Hi Paul)

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ORIC ATMOS 48K £90 ono manuals leads s/w under guarantee phone Chelmsford 283081

PANASONIC MSX computer 64K brand new never used with some games unwanted gift. less than half price £150 call Ronnie evenings at 01 203 4545

"INPUT" computer course for sale Worth £50 (52 issues) Will swap for Alphacom printer and paper + Kempston or programmable joystick interface (Spectrum) Tel (Gary) 061 662 7377

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SINCLAIR QL, mirante systems centronics printer interface books

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Computer Swap entries are limited to 30 words. All entries cost £2.50 and can be accepted in writing only. Please enclose a cheque or postal order or give Access or Barclaycard No in the box provided. Only text appearing in the grid will be printed. Send the form to: Computer Swap, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

All software offered through computer swap must be in original condition and for private sale only

It cannot be swapped

Warning It is illegal to advertise pirated software

COMPUTER SWAP

Please write your copy in capital letters on the lines below

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DIARY

Event	Dates	Venue	Admission	Organisers
Computer Sales	August 18 10.30am-5.00pm	Percy Boys Club New King Street Bath	30p	CJS Northleach 04514 609
The Micro Trend 85	Aug 11	Bursley General Hospital	60p adults 30p children	Pisces Computer Services 0382 53241
Computer Show	August 17 10.30am-5.00pm	Library Hall Homer Road Solihull West Midlands	30p	CJS/Northleach 04514 609
Computer Show	August 18 10.30am-5.00pm	YMCA Hall Severn Street Gloucester	60p	CJS/Northleach 04514 609
Trend Business and Home Computer Exhibition	Aug 19-20 10.30am-5.00pm	Goldiggers Timber St Chippenham Wiltshire	£1.00 adults £1.00 children	Kevin Angell/Simon Moss 0249 656444
Personal Computer World Show	September 4-8	Olympia London	£2.50	Montbuild 01 486 1951

magazines £270 ono Tel Bibury 0803 213862 after 7pm

SINCLAIR RADIONICS LTD 1974 Scientific calculator twelve functions inverse Polish notation New unused boxed with manual Collector's item Highest offer secures Ioannis Georgiades P O Box 11433 GR 541 10 Thessaloniki GREECE

APPLE III + Profile hard disk – second floppy drive Pascal business software very good condition Phone Dave after 6 30pm 01 561 9292 £1300 ono

16K ZX81 £80 software filesixty keyboard £6 of mags £50 or swap for working programs with NI CO Tel 0625 827514

FOR SALE Almost original games cassettes £2 50 each Hobbit and others £5 00 each Also ORIC-1 tapes £1 50 each Program books half price Tel 0695 56218

COMMODORE VIC 20 16K Ram packs for sale Vixen switched a 16K Ram and CBM 16K Ram sell for £20 each Also has slot motherboard sell for £3 Tel Meld (0352) 67842

FOR SALE Acorn Electron plus 2 over £60 software lisp view Rom Electron user's manuals etc all as new sell £230 ono or swap BBC B Tel 0904 410721

BARGAIN offer 5 tapes for £7 Jumping Jack Super Spy Puppet Super spy Winged Warlords originals, good condition phone 031 661 4267 Spectrum versions

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AMSTRAD (green tube) + Basic part I £200 ono new April little used boxed etc Phone 01-472 3250 eves

PANASONIC MSX 64K Boxed with leads Manuals and a cartridge game Unwanted gift with full guarantee Worth £300 bargain £169 ono Tel 01 936 1807 after 6pm

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AMSTRAD CPC464 mono screen & DK Tronics speech synthesizer & 3" single disc drive & Kaga Taxan KP-810 printer & £850 + software & magazines & books & discs (Tasword Masterfile Pascal 4T games) VGC £860 ovno (No split) Rick 444 8132

AMSTRAD CPC464 (colour) in box, one month old Complete with manual or logo and system utilities Over 11 months guarantee £400 ono Tel 0783 (Sunderland) 42768 after 6 pm

WANTED – BBC Pascal preferably with disc drive to swap programs hints tips etc Write to – Paul Phillips 13 Mountain Rd Conwy Gwynedd

48K SPECTRUM plus, 6 month guarantee ZX printer Kempston Interface over £100 of software £50 worth of books whole system worth over £330 Quick sale bargain only £145 ono phone now Mark 907 5398

ATARI XE130 128K plus disc drive and discs and Dos 2 5 Six weeks old £320 ono Phone Steve 0268 727068 daytime or 0268 728138 nights

ELECTRIC software's new graphic adventure The Wreck for 48K MSX micros for sale one only RRP £14 95 my price £10 ono Tel Neil on 0602 672723

AMSTRAD software for sale all titles original as new Combat Lynx Galactic Plague Hunter K for Roland Caves 3D Star Strike £4 95 each Phone 97 743 5831 ask for John

ADVENTURE HELPLINE

Twin Kingdom Valley on Electron. How do I get the giant to follow me to Waterameet? Alas McGregor 6 Marchmont Gardens Streamvein Strathclyde (Tel 0357 22082)

Aztec on Spectrum I cannot get into the temple or across the river in the river valley D Kirby 86 The Vineyard Richmond, Surrey

The Sulk on Spectrum How do you kill bees? What does the lusty area mean? How do you kill ants? What do the scratch marks on the wall mean? Any help at all Graeme Cloughley 38 Mungalhead Road Bainsford Falkirk Scotland.

Valkyrie 17 on Spectrum I have got out of the hotel got the skis and book on skiing, but I cannot get down the slop because the voice stops me Do I have to do this? What do you do with the grille in the hotel? Mark Bull 68 Orange Avenue Wickford, Essex.

Message from Andromeda on Amstrad How do I get past the sleep commander's chamber? How do I gain access to the teleport and how and where do I use the explosives the coin the metal bar and the detonator? R Wilson 7 Cawthorpe off Dukes Brow Blackburn, Lancs

Gremlins on Spectrum. How do I stop the snowplough from running me down and how do I create an explosion? Any help gratefully received Symon Kendall, 50 Tower Street Trallwn Pontypridd Mid-Glamorgan

Curse of the Werewolf on Vic20 How do I get into the castle if I don't have the staff? How do I make silver and what use is the telescope sword and scroll? S Macgowan 47 Hallgarth Circle Kendle Cumbria.

Tower of Despair on Spectrum How can I escape the statue in the woods I have all the magic items gauntlet and staff but keep returning to the same place K M Thorpe 88 Woodlands Avenue West Byfleet Weybridge Surrey

Eureka on Spectrum/C64. Is anyone willing to swap the solution to adventure 3 4 or 5 in exchange for the answer to adventures 1 and 2 Colin Langley 5 Clare Crescent Bottesford, Scunthorpe S Humberside

Sherlock on Spectrum How do I prove that Fleakes is the scam? Any other help Sara King 41 Bealey Close Penenden Heath, Maidstone, Kent ME14 2DF

Catacombs on Commodore 64. How do you get past the harpy in the stone room? Chris Waite, 18 Sussex Close Boreham Chelmsford Essex CM3 3ED

Crystal Theft on Amstrad. I can't get started! I can offer help in exchange on Message from Andromeda Jewels of Babylon and Snowball David carr, Thronlea Oak Road, Mottram Saint Andrew Macclesfield Cheshire SK10 4RA

Twin Kingdom Valley on Spectrum. How do I get the desert king treasure chest? Also any other help please Christopher Hallam 43 Duke Street Cotmanhay Ilkeston Derbyshire

System 15000 on Spectrum. Any help please Sum yann 3 Granger Street Dudley West Midlands

Zim Zala Bim on Commodore 64. How do you get out of the dungeon and what is the plank for? Clive Dotton, Church End House Lynn road Middleton Kings Lynn Norfolk

Castle of Riddles on BBC How do I get out of the black maze? How do I get past the bear? Kenneth Tracy 5 Dennet Close Maghull, Merseyside L31 5PD

Eureka – Roman Times on Commodore 64 How do you get in the army camp? I've tried everything! Simon Talbot 53 Farm Green East Finchley London

Castle Quest on BBC What do you do with the wand? David Bonehill 131 Donnington Close, Church Hill Redditch Worcs.

Jewels of Babylon on Commodore 64 How do you cross the bridge? Where is the slab of rock? Where is the key? Chris Waite 18 Sussex Close Boreham Chelmsford Essex.

Knight's Quest on Spectrum How can I climb out of the valley by the river? I have found the dwarf, rope metal bar and magic compass K M Thorpe 88 Woodlands Avenue, West Byfleet Weybridge Surrey

Urban Upstart on Spectrum I have found the airport and I have got the book on flying and all the other objects but I can't find the plane What next? Marc Bell, 68 Grange Avenue Wickford Essex

Rendezvous with Rama on Commodore 64 Any help from inside Rama please J B Pickord 6 Poplar Grove Bollington Macclesfield Cheshire

System 15000 on BBC Could someone please send me all the telephone numbers and codes to beat the game Paul Tang 21 Main Street Branston Burton-on-Trent, Staffs (Tel. 0283 65636)

Zkul on QL What do the songs and the green tank do? How do you read the message in the pentangle E Penman, 2 Kenneth Court 173 Kennington Road Kennington London SE11

Lords of Time on Commodore 64 I can't find the frozen lake on level 2 Michael Carroll 3 Tusker View Wexford Ireland

Sherlock on Commodore 64 I can't do anything! Ian Pattiiss 14 Mull Place Broomlands Irvine Ayrshire KA11 1HP

Dungeon Adventure on Atari. This is the first adventure game I've tried, I can get almost everywhere in the game but I don't know how to solve it! Mike de Cock Frimeur Street 11 B1000 Deurne Antwerp Belgium

Fantasia Diamond on Amstrad. How do you break the black windows or cross the river? Sean Lambert 44 Dunlin Road Grovehill West, Hemel Hempstead Herts HP2 6LY

Eric the Viking on BBC I've managed to set sail but I seem to be getting nowhere from there R Dawson 41 Union Court Otley W Yorks LS21 3AS

Charts



Amstrad

1	(1)	Dun Darach	(Gargoyle)	£9.95
2	(2)	Beach-head	(Access/US Gold)	£9.95
3	(6)	Red Moon	(Level 9)	£6.95
4	(3)	Alien 8	(Ultimate)	£9.95
5	(8)	Knight Lore	(Ultimate)	£9.95
6	(7)	Mini Office	(Database Publications)	£8.95
7	(8)	Rocky Horror Show	(CRL)	£8.95
8	(-)	Combat Lynx	(Durrell)	£8.95
9	(10)	Snooker	(Amsoft)	£8.95
10	(9)	Sorcery	(Virgin)	£8.95

Bubblers:

Danger Mouse	(Thorn/EMI)	£6.95
Gremlins	(Adventure International)	£9.95

Atari

1	(2)	Bounty Bob Strikes Back	(US Gold)	£9.95
2	(1)	Airwolf	(Elite)	£9.95
3	(3)	Drop Zone	(Microprose/US Gold)	£9.95
4	(4)	Archon	(Ariolasoft)	£11.95
5	(8)	Hard Hat Mack	(Ariolasoft)	£9.95
6	(5)	Miner 2049 er	(Big 5)	£9.95
7	(7)	Bruce Lee	(Datasoft/US Gold)	£7.95
8	(8)	Colour Space	(Llamasoft)	£7.50
9	(-)	Ghostbusters	(Activision)	£14.95
10	(5)	MULE	(Ariolasoft)	£14.95

Bubblers:

Kissin Cousins	(English Software)	£8.95
Smash Hits 3	(English Software)	£14.95

BBC

1	(1)	Revs	(Acornsoft)	£14.95
2	(2)	Alien 8	(Ultimate)	£9.95
3	(3)	Repton	(Superior)	£9.95
4	(4)	Magic Mushrooms	(Acornsoft)	£12.95
5	(6)	Atic Atac	(Ultimate)	£7.95
6	(-)	Combat Lynx	(Durrell)	£8.95
7	(-)	Hobbit	(Melbourne House)	£17.95
8	(8)	Elite	(Acornsoft)	£18.95
9	(-)	Mini Office	(Database)	£5.95
10	(5)	Wizardore	(Imagine)	£7.95

Bubblers:

Football Manager	(Addictive)	£7.95
Lode Runner	(Software Projects)	£7.95

Commodore 64

1	(1)	Way of the Exploding Fist	(Melbourne House)	£9.95
2	(3)	Hypersports	(Imagine)	£7.95
3	(2)	Elite	(Firebird/Acornsoft)	£14.95
4	(7)	Nick Faldo Plays the Open	(Mind Games)	£9.95
5	(4)	Shadowfire	(Beyond)	£9.95
6	(9)	Soft Aid	(Various Artists)	£4.95
7	(-)	Rockford's Riot/Boulderdash	(Monolith)	£8.95
8	(-)	Forth Protocol	(Hutchinson)	£12.95
9	(5)	Dambusters	(Sydney/US Gold)	£9.95
10	(-)	Frankie goes to Hollywood	(Ocean)	£9.95

Bubblers:

Red Moon	(Level 9)	£6.95
Great American Road Race	(Activision)	£9.95

Spectrum

1	(2)	Frank Bruno's Boxing	(Elite)	£6.95
2	(1)	Hypersports	(Imagine)	£7.95
3	(4)	Glass	(Quicksilva)	£7.95
4	(-)	Nick Faldo Plays the Open	(Mind Games)	£9.95
5	(3)	Jet Set Willy 2	(Software Projects)	£7.95
6	(5)	Shadowfire	(Beyond)	£9.95
7	(7)	Soft Aid	(Various Artists)	£4.95
8	(8)	Spy vs Spy	(Beyond)	£9.95
9	(-)	Forth Protocol	(Hutchinson)	£9.95
10	(9)	Rocco	(Gremlin Graphics)	£7.95

Bubblers:

Highway Encounter	(Vortex)	£6.95
Red Moon	(Level 9)	£6.95

All figures compiled by Ram/C

Top Twenty

1	(2)	Hypersports *(Spectrum/C64)*	Imagine
2	(1)	Way of the Exploding Fist *(C64)*	Melbourne House
3	(4)	Frank Bruno's Boxing *(Spectrum)*	Elite
4	(3)	Elite *(C64/BBC/Electron)*	Firebird/Acornsoft
5	(5)	Soft Aid *(Spectrum/C64)*	Various Artists
6	(-)	Nick Faldo Plays the Open *(Spectrum/C64)*	Mind Games
7	(6)	Jet Set Willy 2 *(Spectrum/C64)*	Software Projects
8	(7)	Glass *(Spectrum)*	Quicksilva
9	(9)	Spy vs Spy *(Spectrum/C64)*	Beyond
10	(10)	Cauldron *(Spectrum/C64)*	Palace
11	(-)	Fourth Protocol *(Spectrum/C64)*	Hutchinson
12	(12)	Shadowfire *(Spectrum/C64)*	Beyond
13	(13)	Rocco *(Spectrum)*	Gremlin
14	(8)	View to a Kill *(Spectrum/C64/Enterprise)*	Domark
15	(14)	Dun Darach *(Spectrum/Amstrad)*	Gargoyle
16	(15)	Alien 8 *(Spectrum/BBC/Amstrad)*	Ultimate
17	(17)	Nodes of Yesod *(Spectrum)*	Odin
18	(-)	Rockford's Riot/Boulderdash *(C64)*	Monolith
19	(18)	Herbert's Dummy Run *(Spectrum/C64/Amstrad)*	Mikro-Gen
20	(-)	Frankie Goes to Hollywood *(C64)*	Ocean

Figures compiled by Ram/C

Readers' Chart No 36

1	(2)	Elite (C64/BBC/Electron)	Firebird/Acornsoft
2	(3)	Dun Darach (Spectrum/Amstrad)	Gargoyle
3	(1)	Soft Aid (Spectrum/C64)	Various Artists
4	(4)	Shadowfire (Spectrum/C64)	Beyond
5	(7)	Hypersports (Spectrum)	Imagine
6	(10)	Revs (BBC)	Acornsoft
7	(-)	Way of the Exploding Fist (C64)	Melbourne House
8	(6)	Confuzion (Spectrum/Amstrad/C64/BBC/Electron)	Incentive
9	(8)	Knight Lore (Spectrum/BBC/Amstrad)	Ultimate
10	(5)	Spy vs Spy (Spectrum/C64)	Beyond

Winning phrase No 36: "Tasty spiv does life" from Terry Flood, Leclair House, Ferrier Estate, Kidbrooke, London, who receives £25. Others who came close include (mainly yetis) "Pope lifts sad yeti" from Alec Crawford, from Penicuik and "Yetis tipple soda" from C P Craig of Dundee

Now voting on week 37 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU!

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 37 closes at 2pm on Wednesday August 7 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

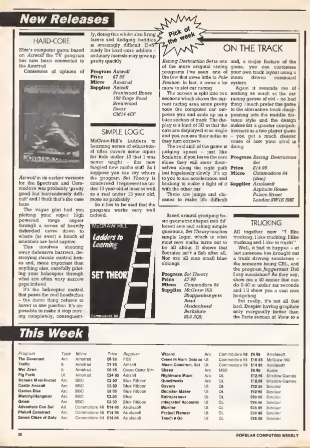
Name .... **My top 3: Voting Week 37**

Address .... 1..

.... 2..

.... 3..

My phrase is: ....



New Releases

HARD-CORE

Elite's computer game based on *Airwolf* the TV program has now been converted to the Amstrad

Consensus of opinion of *Airwolf* in its earlier versions for the Spectrum and Commodore was probably 'pretty good but horrendously difficult' and I think that's the case here

The vague plot had you plotting your super high powered mega copter through a series of heavily defended caves down to where (as ever) a bunch of scientists are held captive

This involves shooting away defensive barriers, destroying missile control boxes and, more important than anything else, carefully piloting your helicopter through what are often very narrow gaps indeed

It's the helicopter control that poses the real headaches – the damn thing refuses to hover in one position It's impossible to make it stop moving completely, consequently, doing this whilst also firing lazers and dodging baddies is amazingly difficult Definitely for hard-core addicts – ordinary mortals may give up pretty quickly

Program *Airwolf*
Price *£7.95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
169 Kings Road
Brentwood
Essex
CM14 4EF

SIMPLE LOGIC

McGraw-Hill's Ladders to Learning series of educational titles covers some topics for kids under 13 that I was never taught – this new fangled new maths stuff So I suppose you can say where the program *Set Theory* is concerned I represent an under 13 year old at least as well as a real under 13 year old, more so probably

So it has to be said that the program works very well indeed.

Based around grouping basic geometric shapes into different sets and asking simple questions, *Set Theory* teaches simple logic, which is what most new maths turns out to be all about It shows that Socrates isn t a fish after all. Nor are all men small blue oblongs

Program *Set Theory*
Price *£7 95*
Micro *Commodore 64*
Supplier *McGraw-Hill*
Shoppenhangers Road
Maidenhead
Berkshire
SL6 2QL

Pick of the week

ON THE TRACK

Racing Destruction Set is one of the more original racing programs I've seen one of the few that owes little to *Pole Position*. In fact, it owes a lot more to slot car racing

The screen is split into two sections which shows the current racing area since pretty soon the computer car outpaces you and ends up on a later section of track The display is a kind of 3D in that the cars are displayed at an angle and you can see their sides as they turn corners

The real skill of the game is judging speed – just like Scaletrix, if you leave the cars alone they will steer themselves along the right path but hopelessly slowly It's up to you to use acceleration and braking to make a fight of it with the other car

There are jumps and chicanes to make life difficult and, a major feature of the game, you can customise your own track layout using a menu driven command system

Again it reminds me of nothing so much as the car racing games of old – no bad thing I much prefer this game to the alternative track disappearing into the middle distance style and the design makes for a greater competitiveness as a two player game – you get a much clearer sense of how your rival is doing

Program *Racing Destruction Set*
Price *£14 95*
Micro *Commodore 64 (disc)*
Supplier *Ariolasoft*
Asphalte House
Palace Street
London SW1E 5HS

TRUCKING

All together now "I like trucking, I like trucking, I like trucking and I like to truck!"

Well, it had to happen – at last someone has brought out a truck driving simulation – the someone being CRL, and the program *Juggernaut* Did I say simulation? As they say, show me a 40 tonner that can do 0-40 in under six seconds and I ll show you a cast iron hedgehog

But really, it's not all that bad. Despite having graphics only marginally better than the Paris section of *View to a*

This Week

Program	Type	Micro	Price	Supplier
The Covenant	Arc	Amstrad	£6 95	PSS
Traffic	S	Amstrad	£8 95	Amsoft
War Zone	S	Amstrad	£6 95	Cases Comp Sim
Fig Forth	Ut	Amstrad	£24 95	Amsoft
Banana Man/Secret	Arc	BBC	£2 50	Blue Ribbon
Castle Assault	Arc	BBC	£2.50	Blue Ribbon
Games Dise	Arc	BBC	£8 95	Blue Ribbon
Munchy/Hangman	Arc	BBC	£2.50	Blue
Qman	Arc	BBC	£2.50	Blue Ribbon
Adventure Con Set	Ad	Commodore 64	£14 95	Ariolasoft
Pinball Construct	Arc	Commodore 64	£14 95	Ariolasoft
Seven Cities of Gold	Arc	Commodore 64	£14.95	Ariolasoft
Wizard	Arc	Commodore 64	£9 95	Ariolasoft
Comm 64 Mach Code as	Ut	Commodore 64	£16 95	McGraw Hill
Music Construct. Set	Ut	Commodore 64	£14 95	Ariolasoft
Sheex	Arc	MSX	£6.95	Kuma
Nightmare Maze	Arc	QL	£12.95	Shadow Games
Quazimodo	Arc	QL	£12.95	Shadow Games
Cavern	Ut	QL	£12.95	Sinclair
Decision Maker	Ut	QL	£12 95	Sinclair
Entrepreneur	Ut	QL	£39 95	Sinclair
Integrated Accounts	Ut	QL	£89.95	Sinclair
Monitor	Ut	QL	£24 95	Sinclair
Project Planner	Ut	QL	£39 95	Sinclair
Touch n Go	Ut	QL	£39.95	Sinclair

Kill, it really is quite fun as you manoeuvre your rig around town, picking up various loads No other traffic here (perhaps it's a Sunday) but there are traffic lights and stuff

If there's a lorry driver in the family, then it's highly recommended Otherwise, strictly for Yorkie fans

Program *Juggernaut*
Price *£7 95*
Micro *Spectrum 48K*
Supplier *CRL*
9 Kings Yard
Carpenters Road
Stratford
London E15

TEDIOUS

Mayday really is dreadful. The title may deceive, but what we have here is a version of boring old *Lunar Rescue* For those too young to remember it, the game involves piloting a space shuttle down the screen dodging meteors, landing on a suitable landing pad and returning to the mothership at the top of screan by blasting one's way back up the screen.

So it goes, different screens have more difficult landing sites which involve negotiating your way down winding channels

It's OK as a game but then it has been for centuries and there are zillions of other versions at least as good as this one Utterly tedious and should be on a cheap label if anywhere. £7 95 is just silly

Program *Mayday*
Price *£7 95*
Micro *BBC*
Supplier *Beevan Technology*
Gresham Chambers
14 Lichfield Street
Wolverhampton
West Midlands
WV1 1DG

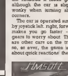
SINGLE STEP

Assembly Language Programming on your Commodore 64 is a combined Assembler package – one of several dozen

There's nothing really all that special about this package except that it's just been released and it's relatively cheap at £16 95

The Assembler accepts source code written in Basic lines which can be edited using the normal text and screen facilities Labels may be up to 75 characters long and the program is not fussy about hexadecimal or decimal numbers and how many spaces you leave between mnemonic and value

The Disassembler also accepts hex or decimal and will



function continuously in pages or single steps

Both parts of the package are about as easy to use as they can be and the Pseudo instructions acceptable to the Assembler may prove to be a godsend, for example, DFS lets you enter a character string at the current assembly address and could therefore save you hours on titles and headings

Program *Machine Code Assembler/ Disassembler*
Price *£16 95*
Micro *Commodore 64*
Supplier *McGraw Hill Book Company*
Maidenhead
Berks

EXPLOSIVE

Grand Prix Rally II is a racing game for the Amstrad in the classic style – the rear view of the car and a road that is drawn into a point in the far horizon, giving an illusion of distance

It's a standard computer trick and how well it works depends on the effectiveness of the 3D scrolling effect – on the Amstrad it looks good, although the car is slightly wonky when turning sharp corners.

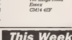
The car is operated simply by joystick left right, forward makes you go faster – no gears to worry about There are other cars on the track, so, as ever, the game is all about quick reactions there's



a fairly effective explosion when things go wrong

Interest in the game is maintained by a variety of driving conditions which affect the handling of the car and various sections of road where miscalculations on corners are fatal.

Program *Grand Prix Rally II*
Price *£7 95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
169 Kings Road
Essex
CM14 4EF



A Tangled Tale	Ad	Spectrum	£2 99	Central Sols
Crystal Quest	Ad	Spectrum	£2 99	Central Sols
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Key Ad – adventure S – strategy-simulation
Arc – arcade Ut – Utility
Ed – education

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Monster creation

The story of Dr Weizenbaum has become fairly famous He's the man who back in the mid-seventies put together some clever programming tricks to produce *Eliza*, the almost-human computer program which – like her namesake in George Bernard Shaw's *Pygmalion* – learnt to talk so well that you could hardly tell she wasn't the real thing

Slightly disguised as *Doctor Eliza* became a brilliant parody of a psychotherapist, responding to a patient's confessions with gently probing questions.

Dr Weizenbaum was immensely pleased with what he'd done – until he realised that everyone else was taking the program seriously Learned journals were predicting the total computerisation of the psychiatric industry; students were secretly plugging in for hours of late-night conversation about their favourite topic – themselves The last straw for Weizenbaum was when his secretary who actually knew many of the little tricks that went into the program asked him one day if he would leave the room so that she could consult the computer in private.

But it's only a trick! I didn't mean this to happen! howled the unhappy Weizenbaum to anyone who would listen, while the public (and some computer specialists who should have known better) continued to hail his program as a breakthrough in Artificial Intelligence

Dr Weizenbaum's pain and remorse are amply apparent in his book *Computer Power and Human Reason*, published by Pelican (a reprint of the 1976 American edition but with a new preface expressing disquiet about the moral values of video games) It's a striking book, with many interesting things to say about computers and their limitations The Weizenbaum conclusion is that computers can do almost anything – except the things that are actually important

The main point he makes is about the enormous difference between the calculating powers of a computer and real intelligence, the human quality that comes not from electric currents activating logic gates but from the human experience – physical, moral, emotional, that machines can never know. Machine Intelligence will never be more than a pale copy of limited aspects of human thought

But some of Dr Weizenbaum's comments made me wonder For example, he writes "I had thought it essential, as a prerequisite to the very possibility that one person might help another to cope with his emotional problems, that the helper himself participate in the other's experience of those problems " This brought me up short as I thought of all those people who have been helped to cope with their problems by people they have never met – by authors of books and poems, for instance, that sometimes very indirectly and in ways quite unintended, speak to their own condition.

Perhaps when writing was first invented, there were people as distrustful of the new medium as Dr Weizenbaum is of computer software They could have pointed out all the subtleties that any written account must, by its nature, leave out They would have warned that the relationship of author and reader could never quite be that of man meeting man in the flesh. Remote influence is nothing new It's the basic condition of literature

Perhaps computer awareness will have grown up when we realise that there is nothing magically different about a piece of computer software It's just like a book, in that it has an author, who may be right or may be wrong, but either way is *responsible* whether he likes it or not.

As for people misunderstanding you – that happens to authors all the time And when were a writer's intentions a guide to the value of the work?

I'm afraid I can't resist a smile when I read of Dr Weizenbaum's horror when he glimpsed his creation reflected in the eyes of others

But his creation it was – every byte of it determined by him. It's Baron Frankenstein who's the real monster, after all.

George Simmons

Four across

Puzzle No 168

In this crossnumber puzzle, numbers have to be filled in rather than words Can you complete the puzzle and also determine the values of A B and C

1		2		3
	▨		▨	
4				
▨	▨		▨	▨
5				

Across	*Down*
1 B^3	1 $(A-B)^4$
4 $A*B$	2 $(A-B)^3$
5 C^4	3 C

Solution to Puzzle No 163

Of the 2197 different possible combinations of cards, 343 of them will win and 1854 will lose

```
10 LET MULT=0:LET NONMULT=0
20 FOR A=1 TO 13
30 FOR B=1 TO 13
40 FOR C=1 TO 13
50 LET S=A+B+C
60 LET P=A*B*C
70 IF P/S=INT(P/S) THEN MULT=MULT+1 ELSE
NONMULT=NONMULT+1
80 NEXT C
90 NEXT B
100 NEXT A
110 CLS:PRINT "@]N=",MULT,"LOSE=";NONMULT
120 END
```

The program uses three *For/Next* loops to generate each of the possible combinations of cards in turn The sums and products of these cards are then calculated and if the product is an exact multiple of the sum, then the *Mult* variable is incremented by 1 Otherwise, the *Nonmult* variable is incremented

After all combinations have been assessed the result is displayed

Winner of Puzzle No 160

The winner is Keith Simpson of Poole Dorset, who receives £10

Rules

The closing date for Puzzle No 168 is September 4

The Hackers



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